



The Future of the PC ■ Battle of the Titans: Pentium 4 vs Athlon XP

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June 2002

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>> Your Technology Navigator

# It's your 22 Call

Cell Phones Tested

Is Photoshop 7  
worth the Upgrade?



**Protect** your PC  
from prying eyes

A close look at  
Mandrake 8.2



Survivors of the  
**Tumble**

**PLUS**

Build your dream Web site  
Napster's Dead: Now What?  
Creating your first **GAME**

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DIGITAL MEDIA  
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# Publisher's Note



Maulik Jasubhai

**W**e believe in technology. That it is the digital manifestation of the human spirit. This is THE fundamental philosophy behind all that we at Jasubhai Digital Media do. And Digit is our soul.

We believe that the true power of technology is unleashed when it is in the hands of its users. Technology is not and should not be the domain of a few firms or individuals. This dictum has often made us lock horns with many of our most valued clients. And yet it has only further strengthened our resolve to 'protect' and enhance the power of its users. It is and will continue to be our stated and explicit direction to evaluate, analyse, criticise and praise technology to better the user's life. Further, in a country like India where more than 50 per cent of the population lives in villages, it is our promise to take technology to the people. Today Digit reaches more than 300 towns and cities across the country.

Design does matter!

As information becomes ubiquitous it is only the visual and the auditory signals that will enable you to better process, store, retrieve, and yes, even enjoy information. It has been our continuing endeavour to provide you with the most 'immersive' experience. According to one of the independent studies that we conducted, to our most pleasant surprise, our readers spend almost 3 hours reading, 'viewing', and 'playing' our magazine.

We believe that the microchip is a miracle. And this microchip expands its magic beyond just the PC! Technology today is expansive and it will continue to touch, improve and enhance all facets of our lives as we continue along this path of 'evolution'. At Digit, we promise to keep you at the forefront of this evolution.

A stylized, handwritten signature in black ink, appearing to read 'Maulik Jasubhai'.

Best Wishes

Maulik Jasubhai

*Publisher and Executive Director, Jasubhai Digital Media*

# Free for all

**T**he powers that be have announced that anyone using illegal software can be prosecuted for piracy and be sentenced to five years in prison.

Scared?

We need not be, for there is no such law. At least not yet!

Over the past decade we've been trying hard to computerise our businesses, increase PC penetration into our homes and generally create greater awareness about the benefits of IT. But the biggest stumbling block has always been the cost of technology.

Add the cost of legal software to a brand new PC and it would exceed most people's budgets. Or so goes the conventional 'wisdom'. Would we be willing to pay Rs 5,000 more for an operating system to power our new PC that cost us Rs 40,000 in the first place? No, we're used to getting it for 'free'.

This habit of getting and using 'free' software has made us turn a blind eye towards the legal and ethical issues involved with using pirated software. We've tasted blood. There is no way that we would now be willing to pay for software—it's just something we take for granted.

Think about the Internet boom and bust for a moment. Dotcoms tried to reinvent the wheel by offering their products and services for free. That was their biggest mistake. Would users pay for these same services after they were used to getting them for free? A majority of Hotmail.com's subscribers would look for other (read free) alternatives if Microsoft decided to charge a nominal amount for e-mail access.

But software companies have been attaching a price to their products from the very onset. It's just that we have not attached a value to them as we've never been paying up in the first place.

Reducing the cost of software is not really the answer either. How many of us have paid for that cool shareware utility we can't do without? If we are not ready to pay a couple of hundred rupees to register shareware software we use everyday, would lowering the prices of commercial software to any level help?

The burning issue is that we have a choice, the choice of using 'really free' software. But are we even willing to consider it?

Or do we wait till anti-piracy laws become so stringent that getting hold of a copy of the latest Microsoft Operating System will become next to impossible.



Vinit Aggarwal  
Assistant Editor

“We've tasted blood. There is no way that we would now be willing to pay for software—it's just something we take for granted”

A handwritten signature in black ink, appearing to read 'Vinit Aggarwal'.

vinit\_aggarwal@jasubhai.com



## FEATURES

**Future of the PC . . . . .32**

We're making some predictions for the desktop PC in the coming year!

**Stayin' Alive . . . . .44**

A few dotcoms that survived the crash and the strategies that helped them do so

**(Cool+Functional) = < 5K . .48**

That new PC accessory that you've been longing for is well within reach! Take a look at some of these dirt cheap deals we've picked out for you

## TEST DRIVE

**Make the Right Call . . . . .52**

Our very first cell phone test! Pick one and speak your heart out

**Battle of the Titans . . . . .72**

The Pentium 4 2.4 GHz squares up against Athlon XP 2100+

**Adding Magic to Linux . . . . .74**

An extensive review, installation guide, and how-to on Mandrake Linux 8.2

**Picture Perfect . . . . .78**

Photoshop 7 is finally here, but should you really go ahead and upgrade right away?

## INSIGHT

**Wirefree Connectivity . . . .92**

Set yourself free with wireless networking

**A Hex on the Evil Eye . . . .96**

Protect your PC from intruders

**Switch to Autopilot . . . .100**

Automate those monotonous tasks on your PC with Macro Angel

**Can't Stop the Music . . .106**

The sun may have gone down on Napster but peer-to-peer is alive and kicking

**Flash Forward . . . . .110**

Seven steps to upgrading your BIOS

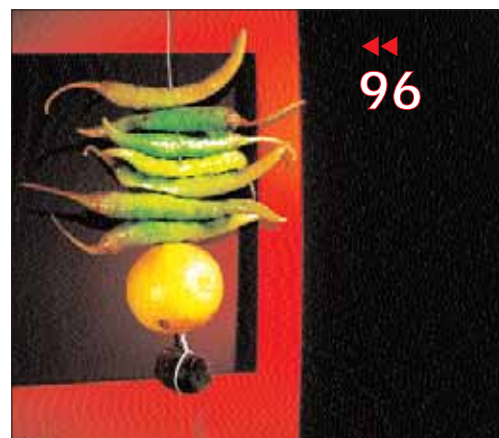
**Web site Vastushastra . .123**

Tips and tricks on building the Web site of your dreams

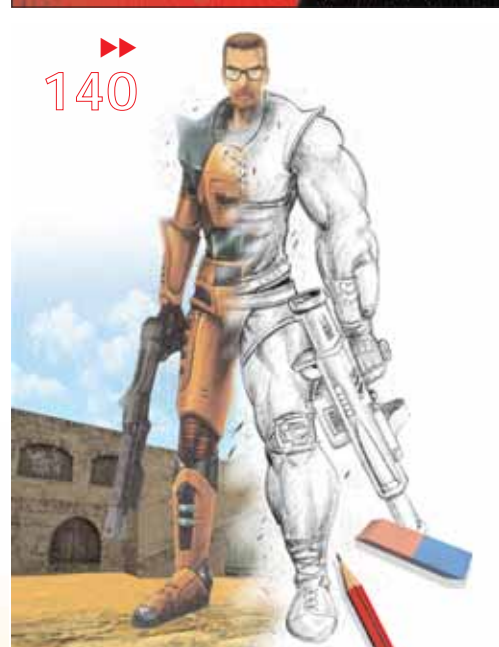
## ARCADE

**Game for some Modification? . . . . .140**

Want to build your own game? Why not start off by 'mod'ifying one first?



96



140



52

32

What will your PC look like in a year?

72

After the dust settles, who should you pick: the Pentium 4 or the Athlon XP?

52

India's first cell phone comparison test

78

Should you upgrade to the latest version of Photoshop?

96

Secure your PC against intruders

74

Lets check out the magic of Mandrake 8.2

44

What the survivors of the Dotcom crash did right

## REGULARS

NEWS FEED .....	20
LETTERS .....	30
DROOLMAAL .....	42
START UP .....	50
BAZAAR .....	82
UNDERCOVER .....	90
Q & A .....	114
TACTICS .....	144
OFF THE SHELF .....	146
DIGIT DIARY .....	148
BACKBYTE .....	150

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## Reviewed this month

### HARDWARE

#### Bazaar .....82

EyeD OptiMouse  
Fuji FinePix 2800 Zoom  
Fujitsu P-1030  
HP LaserJet 1000 series  
Imation RipGo!  
Nike PSA[Play 120  
Nikon COOLPIX 775  
Powercom BNT600VA (UPS)  
Sony Multiscan E230

#### Cell Phones Test .....52

**Budget**  
Ericsson A3618s  
Ericsson T29s  
Motorola T190  
Nokia 3310  
Nokia 3350  
Philips Fidio 120  
Samsung SGH-R220

#### Mid-range

Siemens A35  
Siemens M35i  
Nokia 5210  
Nokia 6210  
Nokia 8250  
Panasonic EB-GD75  
Philips Fidio 620  
Samsung SGH-A400  
Siemens C45  
**High-end**  
Motorola V.66  
Nokia 5510  
Nokia 8310  
Samsung SGH-M100  
Siemens ME45  
Sony Ericsson T68i

#### Processors..... 72

Pentium 4 2.4 GHz  
Athlon XP 2100+

### SOFTWARE

#### Bazaar .....82

Advanced Registry Tracer  
Music Label 2002  
SmartDraw 6.0 Standard Edition  
SWISH 2.0

#### Linux .....74

Mandrake 8.2

#### Image Editing

#### Software .....78

Photoshop 7



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taste technology at <http://www.thinkdigit.com>

## Web Special



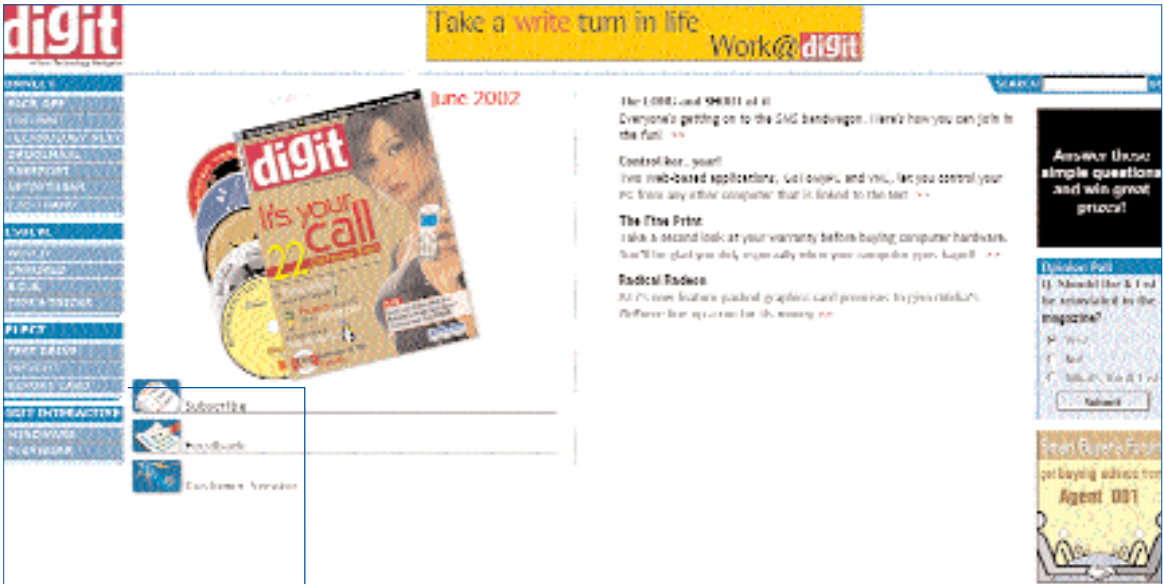
### Fantasies embedded in real time

Embedded systems are the unsung heroes of much of the technology we use today—video games, CD players and even the washing machine we use at home. Read more about how this technology impacts our life.

## Features

### Firsthand

What good is technology if it is beyond the grasp of the people it was meant for? Our firsthand stories are based on experiences of other end users showcasing how technology affects us.



## Arcade

### Games



Satisfy your gaming needs with feature stories, game reviews and tips & tactics on popular games.

## Web Special



### 10 free downloads for every PC user

Some handy downloads that will smoothen your computing experience.

# Digit

powered by  
**Seagate**

## SYSTEM TOOLS

### Powerdesk Utilities 4.0

Powerdesk Utilities takes the functionality of Windows Explorer a step further with a host of its own features.

You can now keep track of the files and folders on your system with features such as single or dual pane file management windows, a powerful file finder, as well as zip and unzip features, a dialog helper and a whole lot more. If you have Quick View or Quick

View Plus you can view various file types directly in the integrated Powerdesk viewer pane.

### Ranish Partition Manager

Ranish Partition Manager lets you create, resize and delete partitions on your



Free trial version

hard disk without losing any of your valuable data. The software also lets you copy partitions and clone disks. You can also install multiple operating systems on one hard disk with its boot manager.



For Enterprise-wide accounting solutions

### Ashampoo WinOptimiser Suite

Been having problems with your Windows OS recently? This software will help you optimise Windows' performance by finding redundant files, cleaning up your registry, recovering hard disk space and more. With its comprehensive undo database you can restore any changes you make even after a week.

### Quick Heal 6.06

This anti-virus software boasts of a new tracing system that can detect the very latest viruses. It includes features such as a Eudora plug-in for real time e-mail scanning.



### ...and a whole lot more!

MaxSplitter Free Edition, WinRAR 3.00 beta 7, Drive Rescue 1.9b, Add/Remove Plus 2002 3.0, Encryption Plus Folders Freeware 5.0, Windows Security Officer 5.4, Desklock Security System 2.4.1d, BootIt Next Generation 1.29e, WindowBlinds 3.3, RegCleaner 4.30.780, Drive Rescue 1.9b



Free software

## MULTIMEDIA

### 360° Xtreme Soundtraxx

Making your own cool music isn't enough. With Xtreme Soundtraxx you can also add your own video clippings! The software includes an archive of video clips, which you can edit using its precise editing features.

### The Gimp 12.26

Get your creative juices flowing with this image editor. This program features a free floating interface, which lets you access the desktop environment to create or edit images. The software also supports all the major graphic file types including GIF, JPEG and PNG.

### Strata

#### 3Dbase 3.5

This advanced 3D modelling tool boasts many features that were used in creating the game, Myst. The software features fully customisable shapes for any modelling design, as well as several rendering options. It has an easy-to-use interface and includes advanced functions as well as beginner level tools.

### Ulead VideoStudio 6.0

This full featured program boasts of a wide range of tools meant for capturing,



Exclusive free trial version

editing, and authoring video files. This software lets you import videos directly from a DV camcorder into high quality MPEG-1 and MPEG-2 formats.

### Sound Forge v5

Edit and record your own audio and video, and save them in various file formats. It also has built-in support for video and CD burning.

### Experience to the max...

Dance eJay 4.0, Cool Edit 2000, GoldWave 4.26, SnagIt 6.0.2, DVD Cutter Stream and Mp3CDWav Converter 3.0

Droolmaal Sponsored by



Drool of the month





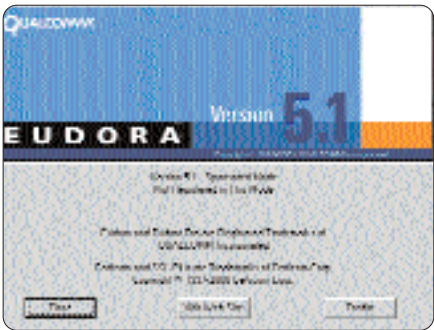
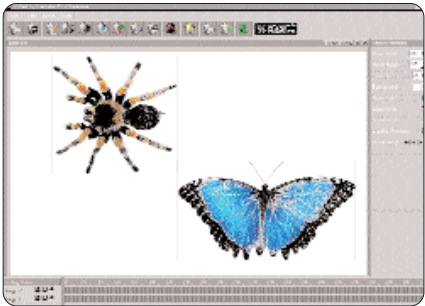
INTERNET SOLUTIONS

Eudora 5.1

This e-mail client features, among others, multiple address book formatting options and the ability to filter, redirect, and forward mail. Eudora also features a filter that 'speaks' the name and subject of incoming mails.

CoffeeCup Firestarter 4.5

Create the best Flash effects for your



Web site with Firestarter's 50+ built-in effects, a collection of MP3 sounds, built-in sound editor and more.

Sygate Personal Firewall Pro

Aside from standard firewall tasks, this firewall also includes security features for protecting operating systems, networks, and applications. The firewall protects users from denial of service attacks and Trojans.

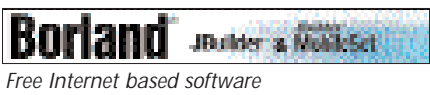
FlashGet 1.2

Let FlashGet take care of all your download hassles. This

software is aimed at speedy downloads and management of downloaded files. The software can automatically split files into sections and download each section separately.

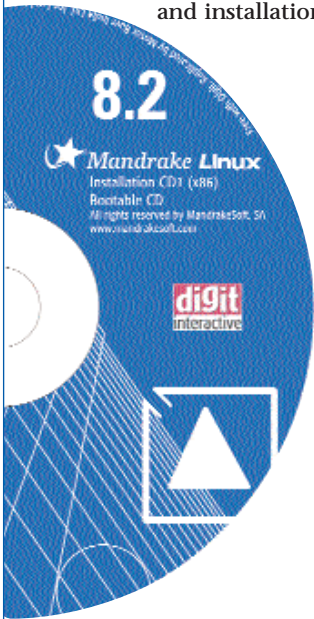
Power Surfing...

- ZetaFax 7.5,
- MediaRing Talk 7.3,
- NewsBin Pro 3.3,
- Download Accelerator Plus 5.0, NetAnts 1.25,
- AcqURL 5.2, ZoneAlarm Pro 3.0, Mail Bomber 7.0, SWiSH 2.0, HoTMetaL Pro 6.0, Beatnik 2.2, Active Email Monitor 2.7, PC Spy 2.4, CoffeeCup Image Mapper 3



MANDRAKE LINUX 8.2

We present the most user-friendly Linux operating system. Check out page 74 for a hands-on review and installation guide.



GAMESTATION

Soldier of Fortune II

Step into the shoes of mercenary John Mullins and prevent a bio-terrorist organisation from releasing the deadly Gemini Virus into the world in this most realistic, covert operative FPS experience ever.

Bejeweled for Windows



This is the downloadable home version of the popular Web puzzle game. The

game features enhanced graphics and sound coupled with some very addictive gameplay.

Counter-Strike 1.4 Updater

Get the update for your older version of the most happening multiplayer game today, Counter-Strike, right here!

DarkBasic

Create your own games, demos, and slideshows with this game development kit based on the easy-to-understand programming language, BASIC.

Play on...

- Freedom Force, NOLF
- Editing Tools (v001),
- Blitz 3D, Kali II 2.4,
- 123 Free Memory
- 3.0, Rebound,
- SortSport 1.0,
- ColorBreak 1.0,
- Hallow Meenies 1.0,
- Q3Radiant





## VOLUME 2, ISSUE 6

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### ADVERTISERS' INDEX

CLIENT	PAGE
AMD	Inside Front Cover
ASUS	55,57,59,61
AT&T	71
Borland	21
Creative Technology Ltd.	29
Cyberstar	65
Dell	15,24,25
Digiquest	35
Elnova	122
Epson	17
Featherlite	111
Invensys	Back Cover
lomega	77
Jung Soft	101
Kobian	105
Maxtor	19
Numeric	Inside Back Cover
Olumpus	47
SAE	69
Samsung	9,11,13
Seagate	36,37,38,39,40,41
Sparr Electronics Ltd.	103
Sun	83
Symantec	99
Verbatim	95
View Sonic	51
Zenith Computers Ltd	91

## digit Promise to our readers

While every effort is made to ensure  
that the information and prices  
provided are correct, there may be  
some variation due to differences in  
local taxes across states. Please keep  
this in mind before affecting any  
product purchase.

# news feed

DIGIT JUNE 2002

## hypothesis

OOO

■ What is it?  
OOO from Seattle brings forth the 'ultra personal' computer—a PDA that is a whole computer by itself. Priced at \$1,000, it'll be out in the second half of 2002.

■ So what?  
It runs on Windows XP and is powered by a 5800 Crusoe processor from Transmeta. With a 10 GB hard drive, 256 MB memory, FireWire



and USB connection ports, it packs the punch of a desktop PC in a palm-sized package. It even has wireless networking with WiFi or Bluetooth.

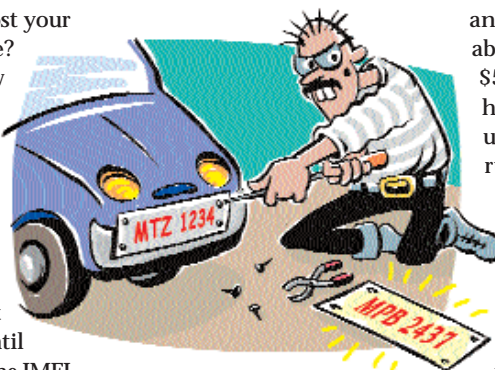
## snapshot

Global revenues from Multimedia Messaging Services (MMS) will be **\$31 billion** in person-to-person applications and **\$39 billion** in machine-to-person applications by 2007

Source: FT Investor

## Hacking your mobile phone

**H**ave you ever lost your mobile phone? If you know your mobile's unique IMEI (International Mobile Equipment Identity) number, you can effectively block your phone from being used on GSM networks. At least that used to be the case until recently. You can find the IMEI number by typing \*#06# on your phone. Trust evildoers to find a way around that as well. There is a whole load of soft-



ware available on the Net, which makes changing the mobile's IMEI as easy as pie. 'Chipping' kits with cables

and software are now available on the Net for around \$50 (approx Rs 2,500). All a hacker has to do is to hook up the phone to a PC and run the software. IMEI is very much like a credit card number wherein only certain combinations of numbers work. The software tries out various combinations till it comes up with one that works. It takes just a few seconds to change the IMEI number. This only proves that no technology is 'crack'-proof.

## BBC's ad-free, porn-free search engine

**G**one are the days when you could simply search for a term in a search engine and come up

an end to all this. This all-new search engine does not use any advertising and uses screening to remove pornography, racist material and offensive sites. The search engine makes use of a mix of Google's and BBC's in-house technology.

However, there's a catch in BBCi's search engine. Although it finds sites from around the world, preferential ranking is given to British sites. This happened as a result of BBC's survey of Net users which revealed that they are tired of search results showing predominantly US sites. Only time will tell how good the quality of the results are.

Check it out for yourself at [www.bbc.co.uk](http://www.bbc.co.uk).



with relevant results. Most search engines these days allow advertisers to pay in order to obtain a higher ranking in search results.

BBC's recently launched BBCi search engine tries to put

## Future home

Microsoft is investing heavily in the eHome concept wherein every device in the home will be interconnected. To promote this, Microsoft has tied up with Israel-based Itran Communications and will release a hardware and software developer kit by the year-end.

Microsoft is banking on SCP (Simple Control Protocol) for eHome. SCP will help devices find and control each other. This protocol doesn't need a PC, but Longhorn, the next version of Windows XP, will have support for SCP. SCP is an extension of Microsoft's UPnP (Universal Plug and Play), supported by Windows Me and XP. But unlike UPnP, SCP does not depend upon TCP/IP.



## Thou shalt see!

People who are completely blind will now be able to see—thanks to technology, which has made artificial retinas possible. Optobionics, based in Illinois, USA, is the company behind the Artificial Silicon Retina (ASR). These solar powered microchips are smaller than a pin's head and are less than half the thickness of a sheet of paper. The chips are surgically implanted behind the patient's retina. It functions by converting the light coming into the eye into electrical impulses, which are then used to stimulate the nerve fibre layers to provide vision. This is very much like the actual operation of the human retina.

ASRs are helpful in treating untreatable forms of blindness such as retinitis pigmentosa and macular degeneration. During clinical trials, doctors were able to restore the eyesight of six patients, who've gained partial vision without any side effects.

# A wrap-around PDA

This one is specially for all you PDA users.

Fossil's Wrist PDA is a wrist watch that can hook up to your Palm PDA (the Pocket PC version is coming out later this year) via the IR port and carry information such as appointments, to do lists, contacts, and so on in addition to displaying the time and date. It can also



receive up to 20 business cards from other Wrist PDAs and regular PDAs. The Wrist PDA has 190 KB of main memory and is water resistant to a depth of 30 metres. But at \$145 (approx Rs 7,250), it's priced on the higher side. Given the price and its dependence on a handheld, it remains to be seen if the Wrist PDA can become a success.

## PlayStation 3, anyone?

Trust Sony to not rest on their laurels with the runaway success of the PlayStation 2. They've already started work on the third generation PlayStation keeping the future in mind. This next generation PlayStation, which is scheduled for launch in 2005, will be powered by an MPU (Microprocessing Unit), which will be around 200 times faster than current processors used in PCs and

game consoles. Sony will partner with Toshiba and IBM, and plans to spend \$400 million to develop this MPU.

Sony is betting heavily on the widespread usage of high-speed fibre-optic networks, as the new machine will have integrated support for such networks.

This is a radical design change that could eliminate the use of storage devices such as DVD drives.

Sony will also try and exploit the vast potential of online gaming and if they play their cards right, they can further secure their position as the number one console maker.

## redalert

### Bad music

Winamp version 2.79 has a bug which allows specially formed data tags in MP3 files to cause buffer overflows. This allows hackers to run pieces of code and access your computer. Such code can be embedded in the ID3v2 tag used in MP3 files.

When the file is played, Winamp tries to use its minibrowser with information from the tag to access the Winamp Web site. It's at this point that the buffer overflow takes place.

The bug spreads by altering ID3v2 tags of other MP3 files in your computer. Download the latest version of Winamp or disable Winamp's minibrowser to rectify this problem.

### Danger chat

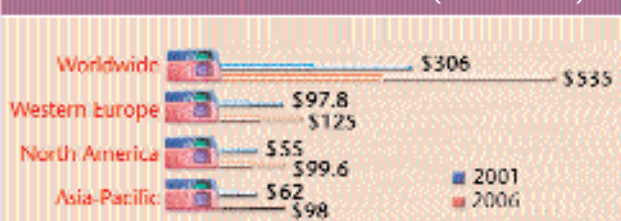
If you are using MSN Messenger versions 4.5 or 4.6, or Microsoft Exchange Instant Messenger 4.5 or 4.6, your system could be open to intruders. Older versions are safe as they do not have the buggy component called MSN Chat Control.

This component allows users to gather in a chat-room to chat with each other. A hacker can exploit the vulnerability here and cause buffer overruns to gain access to your computer.

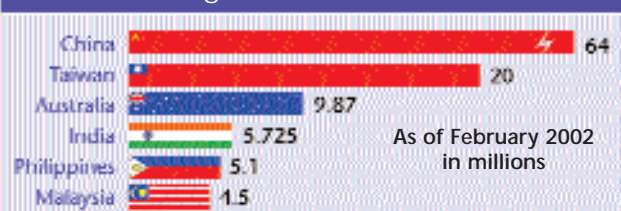
Protect yourself by downloading the latest chat control from the MSN site or by upgrading to the latest version of MSN Messenger or Microsoft Exchange Instant Messenger.

## statattack

### Worldwide mobile revenues (in billions)



### Mobile usage in Asia-Pacific countries



INFOGRAPHICS: Jaya Shetty

## snapshot

7,092,260

Internet users  
in India

Number of Indian  
Internet servers is  
65,960  
(May 2002)

Source: www.netsizer.com1

# Siphoning money virtually

We'd mentioned about the security hazards that plague WiFi (802.11b) networks in our September 2001 issue. Apparently the industry takes a while to wake up to security threats.

The latest casualty of hacker troubles is *Bestbuy.com*. It had to suspend the use of wireless cash registers after an anonymous user on *Securityfocus.com*'s e-mail list claimed to have obtained a credit card



number from Bestbuy's wireless system.

Although these networks are the latest must-haves, there

are several issues to be ironed out—security being foremost.

As we had mentioned in the story, a hacker with basic equipment such as a laptop with wireless transceivers and packet sniffing software can easily gain access to these networks. Bestbuy's case is no different.

## Mera wala LCD paint

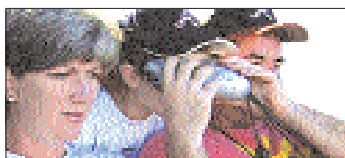
Imagine watches and pagers that can be painted onto your shirt! Or wall papers that change shades when you press a button. Sounds like something out of a sci-fi movie? All this is possible with paint-on Liquid Crystal Display (LCD) technology. This technology has been developed by Dirk Broer of Philips, Netherlands. Liquid crystals are usually sandwiched between two glass plates. When electricity is applied to these crystals, they change colour and become dark. This technology is expensive and does not allow screen sizes of more than one square metre.

However, Broer and his team have come up with a way to deposit liquid crystal layers on single sheets. They have already succeeded in making prototypes by depositing liquid crystal layers on glass and plastic. Cloth is next on their agenda. If this technology succeeds, it could help create cheap lightweight laptops, giant display walls that change colour, and so on. Way to go, Broer and team!

## Outside, yet inside

Nothing beats the thrill of being at the cricket stadium and watching the match firsthand. But at the stadium, you end up wishing you were sitting in front of a TV while trying to figure out whether Sachin Tendulkar was run out or not.

This is where a new wireless gizmo featured at baseball



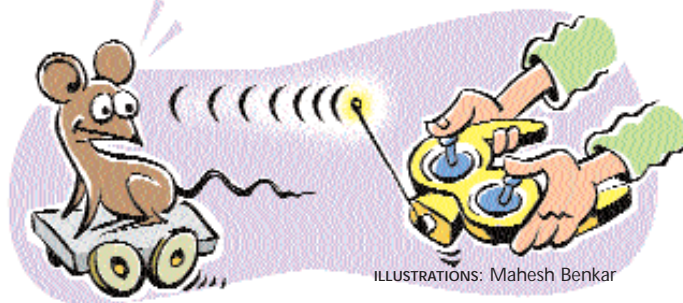
stadiums in the US comes to your aid. Christened 'The Insider', it offers personal instant replays from multiple

cameras. If you are bored with the game, you can use the other three of the four channels to see the news or other programs. It looks like a pair of binoculars and comes along with earphones and has a battery powered receiver at the belt. The Insider is rented out for \$20 (approx Rs 1,000) per game.

## Remote-controlled rats

Rats that do what we command them to? That's what John Chapin, Professor of Physiology and Pharmacology at the State University of New York in Brooklyn has achieved.

He, along with a team of researchers, implanted five rats with electrodes in their brain and provided them with battery backpacks. These electrodes provide pulses generated by a laptop computer to the rats' brains so that they can be remotely controlled to go wherever one wants them to go. Whenever researchers



ILLUSTRATIONS: Mahesh Benkar

want the rats to move in a particular direction, pulses are provided to specific locations of the brain. They are then rewarded by stimulating a pleasure centre in their brain. These rats are intended to

help search for survivors trapped in collapsed buildings. Although such experiments sound exciting, there are ethical concerns too. Imagine remote-controlled human beings!

## snapshot

**115** Dotcom shutdowns between Jan and Feb 2001  
**37** shutdowns between Jan and Feb 2002

Source: [www.webmergers.com](http://www.webmergers.com)



# Xbox creator quits

It's not well with the Xbox. Its sales have been dropping and the last thing Microsoft needed at this point was for Seamus Blackley, co-creator of the Xbox, to resign. Blackley was the public face to fans and game developers for the Xbox. His influence helped Microsoft bag major game developers to develop titles for the Xbox. According to insider sources, Blackley

apparently wants to move on to other projects.



Although Xbox remains the number two console in the US, the scene's not so

pretty in Japan and Europe. Microsoft is biting the dust in Japan with Nintendo and Sony leading in sales and in Europe it's faring no better. As a last ditch attempt to push sales, Microsoft has cut Xbox prices from \$425 to \$265 in Europe.

If this trend continues, Microsoft will have a hard time recovering costs. So is this the writing on the wall for the Xbox?

## Intel launches 533 MHz P4 processors

The new Pentium 4 stalions from the Intel stalions are out and they go on to prove that Intel still firmly believes in the age-old adage that 'Speed is everything'. The lead runner amongst these CPUs is the P4 2.53 GHz that is almost 800 MHz faster than AMD's speediest offering. There's also the Pentium 2.26 GHz and the Pentium 2.4B GHz. Additionally, Intel launched the new

i850E chipset that offers a faster 533 MHz front side bus (FSB) as compared to the previous speed of 400 MHz. The 850E chipset will also support the newer and faster 1066 MHz RDRAM.

These new processors have widened the frequency gap between the P4 and the AMD



Athlon XP, and the 533 MHz FSB gives the P4 an additional edge. AMD now needs to catch up and fast. Their only real hope is their new Athlon Thoroughbred CPUs that will use a 0.13 micron manufacturing technology, allowing them to ramp up their CPU speeds.

## New cat OS from Apple

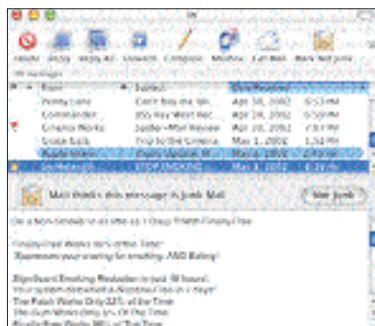
Apple always does things with élan. The unveiling of OS X 10.2 was no different. Christened the 'Jaguar', OS X 10.2's launch

started off with a burial. Yes, Steve Jobs started off with a mock funeral complete with a large silver coffin of the arcane but trusty OS 9.

Jaguar has several improvements and many additional features over the current OS X. The most prominent among them are iChat and Rendezvous.

iChat is a chat program with AOL compatibility and several additional features. It has a local buddy list for networks.

This feature allows the messenger to automatically add all the users available on a network. Rendezvous is a networking feature that makes it possible for Macs to connect automatically to each other without any intervention from the user. It even allows for connection between Macs with wireless capabilities. Another feature is Quartz Extreme, which gives the Macs greater graphics capabilities with the addition of next-generation video cards.



## heroes

Sony

Sony Pictures is getting into the production of computer-animated films. Sandra Rabins and Penney Finkelman Cox, the people behind the runaway hit *Shrek*, will head this new division.

eMac

Apple has launched the eMac (based on the iMac) for the education segment. Loaded with goodies such as a 17-inch monitor and a G4 processor, it's intended for use in schools and other educational institutions. The eMac falls into the \$1,000-\$1,200 segment.

## zeroes

Internet taxes

The European Union to approve a bill that will tax all software downloads from European servers.

P2P services

File sharing programs such as Audiogalaxy and KaZaA have a form of spyware embedded in them that can transmit information such as credit card numbers.

## snapshot

91% of Fortune 500 companies use their corporate Web sites for recruiting purposes

Source: iLogos Research



out ■ RedHat 7.3 released ■ Xbox emulator floating on the Net is a Trojan horse ■ AMD announces improvement in flash-memory design

## IBM's grid games

Grid computing is still in the conceptual state, but IBM is all set to do wonders with it. It has tied up with *Butterfly.net* to build a worldwide network for online video games to be rented out to major game publishers. This network can support more than a million



players. 'Butterfly Grid' is one of the first commercial applications of grid computing.

The advantages of this network when compared to present day online interactive games lie in the lower costs of deployment, support for more simultaneous users and the reduction in the number of interruptions owing to Net congestion. This will enable game studios to release games with massive multi-player support at reduced production costs and speedier development cycles.

IBM is providing the hardware while *Butterfly.net* takes care of the software aspect. *Butterfly.net* is also providing software developer kits for PC and console game makers to enable support in their games for the Butterfly Grid.

## snapshot

**367 million**  
PCs will be in use in  
the Asia-Pacific  
region by **2007**

Source: *cyberatlas.internet.com*

# Who runs your life?

This seems to be the question that MSN's online reality show, modelled after the *Big Brother* reality TV show, asks its participants. This show has five participants whose daily decisions are made by netizens. Every day, partici-

from Scotland as the winner. This 36-year-old engineer had to give up his career in Scotland and move to Spain. But he did pocket a handsome £10,000 in prize money. Other life changing decisions included 25-year-old stockbroker Nik



pants have to submit a decision they need to make. Web surfers can vote and decide what the participants should do. Contestants have to follow the majority's decision.

The experiment received 300,000 votes cast over the 15 days it ran and saw the emergence of John Duncanson

Jones dyeing her hair pink, selling her house and car. Clare Perkins, 27, was made to take part in a nude modelling session! In today's modern society where children don't listen to their parents, blindly following the advice of a group of unknowns seems rather foolhardy, doesn't it?

## quoteworthy

"If I rob a bank, the fact that I haven't been arrested yet doesn't mean I haven't done something wrong"

Matt Oppenheim, Sr Vice President Business and Legal Affairs, RIAA about KaZaA having escaped their clutches

"The best teams are forged during difficult times, not easy times"

Hewlett-Packard CEO, Carly Fiorina, addressing the newly merged HP-Compaq workforce

"Software always will have flaws"

Christopher Budd, Microsoft Security Program Manager, talking about Microsoft's company-wide campaign to reduce security flaws in their software

## tomorrow's technology

# Light and fast

Extreme Ultraviolet Lithography (EUVL) is a new technology for making microprocessors faster by a hundred fold. This could make processors with speeds in excess of 10 GHz a reality in the not so distant future.

EUVL is vying to replace the current optical lithography technology that is used to make microcircuits. It works by burning intense beams of reflected UV light into a silicon wafer.

Microchips made using EUVL will have etched circuit lines smaller than 0.1 micron in width as compared to today's circuits that generally have a width of 0.13 microns or greater.

Intel will be the first chipmaker to get hold of a beta version of the tool in 2005. Other chip manufacturers such as AMD, IBM, Motorola, Infineon and Micron Technologies will also get their hands on these tools as

they're part of the EUVL LLC. EUVL LLC is a consortium of the big shots from the microprocessor industry to conduct research and development in this field.

Although the alpha version of the tool has been around since 2001, the beta version is only expected in the year 2005.

Commercial production of chips using this new technology is expected five years from now.



## 'Digit'al music

Dear Vinit,

The programming of your Mindware and Playware CDs is amazing. The graphics are superb, but what I like most about them is the music that plays in the background. It's usually of the trance/techno or drums & bass genre and as an avid listener of this kind of music, I must say that your DJs are pretty good! Is it possible for you to release a separate Audio CD compilation containing the best tracks from the Digit CDs?

Arefin Mohiuddin

Via e-mail



Dear Arefin,

The music on the CDs is provided by Joann, who apart from being our multimedia designer is also the resident musician and drummer at Digit. She's now considering moonlighting as a DJ, and with fans like you, she's sure to be a show stealer!

**digit**

## Seedy CDs

Hi!

I have a gripe with the quality of your Playware CDs. The featured games in the last few issues have not been working, as the setup files are corrupt. These games are: *Serious Sam* (March 2002), *Medal of Honor* (April 2002), and *Freedom Force* (May 2002). I fear it has turned into a habit for you to not check your CDs thoroughly. Please try and avoid this, as it's very frustrating to find corrupt software on Digit CDs.

Shiraz Ahmad Khan

Via e-mail

Hi Shiraz,

We're aware of this and have carried working installations for all these games in subsequent months so that you don't miss out on any of the fun. Be assured that we're working hard to track down the cause of these problems and are even shifting our CD manufacturing to a new replication plant, apart from making the testing process of the CDs more stringent. Please understand that this is something that we want resolved as urgently as you do.

**digit**

## Lost and found

Dear Sir,

I've been eagerly looking forward to a new version of the Digit CD archive browser, but sadly it's nowhere to be found since the past few months. The archive browser is really useful as it helps me find the software I need instantaneously rather than reading through the CD covers. Please start including this on your CDs once again.

Jatin Soni

Via e-mail

Dear Jatin,

We've dropped the archive browser as we now provide a variety of content on the Digit CDs—e-books, music, movie videos, screensavers, newsletters, whitepapers, FAQs, tips & tricks, product reviews, etc. If you still want the software archive back, log on to [www.thinkdigit.com](http://www.thinkdigit.com) and let us know.

**digit**

## Too demanding

Dear Vinit,

Every month you give a lot of high-end games on the Playware CDs such as *Return to Castle Wolfenstein*, *Max Payne*, *Medal of Honor* and *Freedom Force*. But not everybody owns a GeForce3 graphics card. I have a SiS620 video card and demand that you start including games that have lower system requirements!

Divya

Via e-mail

Dear Divya,

You're in luck! Starting this month, we've launched a new section called Funzone, found on the Gamestation CD, which includes a bunch of fun arcade games that play fine on just about any computer. But if you like playing games so much, do consider an upgrade that will allow you to experience the latest games in all their visual splendour.

**digit**

## digit READERPOLLS

Q. Should the A-List be reinstated in the magazine?

Yes	No	Huh?
75%	6%	19%

An overwhelming majority of Digit readers want the A-List back. What can we say, except 'You got it'!

## Your vote counts

This month's question

"Should we bring back the Software Archive on the CD?"

Log on to [www.thinkdigit.com](http://www.thinkdigit.com) and vote on it

## Greed for speed

Hi Guys,  
I have been using a Pentium II 350 MHz, 64 MB RAM PC with a SiS6326 video card for the past two years and it's feeling quite outdated. Even the cheapest Celeron PCs available today are faster than my computer. After seeing your Tips & Tricks article in the April 2002 issue, I downloaded both SoftFSB and CPUFSB. Using these programs, I overlocked my PC to 467 MHz! I got a kick out of it especially when I ran SiSoft Sandra's CPU benchmark—my system, which used to lag behind the Pentium II 400 MHz, now overtook it with ease. Thanks to you my old computer can chug along for a little while more.

**Manoj Kumar**  
Via e-mail



## Wishlist

Hi,  
For the last three months I've been requesting you to provide some 3D modelling software such as Poser, Softimage and LightWave, but to no avail. I'm sorry to say this, but if you're not bothered by what your readers want then there is a definite problem. Please improve!

**Pravinder**  
Via e-mail

**digit**

Hi Pravinder,  
We try to meet most reader requests for particular software on the Digit CDs. But the 3D modelling software you want have no trial or shareware versions and are only available commercially, which we definitely cannot provide on our CDs.

## Short Bytes

### Illustrious heroes

Hi Vinit,  
I simply love the illustrations depicted in the articles (cartoons, images, etc). It takes a lot of imagination and creativity to come up with such catchy visuals. They have always delighted me and I must say they get my attention everytime! Kudos to the 'unsung heroes' of Digit—the artists!  
**Karthik Sundar**

### Congratulations!

Hello!  
Happy Anniversary to Digit! I have been a regular reader of Digit from December 2001. I enjoy reading every page of the magazine. Thanks for bringing out such a great magazine.  
**Sharadkumar R. Bhatt**

Hi Manoj,  
We're always trying to provide articles that help our readers get the maximum from their PCs, but try not to get too greedy by overclocking your CPU too high. As you've pumped up your processor speed to 467 MHz, your motherboard's FSB is now running at a rather high 85 MHz (up from the default 66 MHz). This means that your entire system is running in an overclocked state. The biggest concern with this is that your PCI devices are running at 42.5 MHz (your PCI bus runs at half your FSB speed) and this might cause problems with your hard drive. I suggest you lower your FSB speed to around 75 MHz, which will bring down your PCI bus to an acceptable 37.5 MHz.

**digit**

## Playing favourites?

Dear Editor,  
The motherboard comparison test in May 2002 did not mention the speed of the Pentium 4 processor used for testing. I know that you used the Athlon XP 2000+, and can only assume that you used the Pentium 4 2.4 GHz as the test process stated that you were testing the boards with the fastest available processors. Hence the benchmarks heavily favour the Pentium 4. I'm not suggesting that you're partial to Intel, but a person looking for a new top-of-the-line CPU might use the benchmarks provided in the test and choose a Pentium 4.

**Saurabh Barua**  
Via e-mail

Dear Saurabh,  
The processor used during the motherboard comparison test was the Intel Pentium 4 2.2 GHz. The test provided you with the information needed to choose the best motherboard for your needs. It cannot be used for a head to head comparison between the Intel and AMD processors. For this you need to check out our 'Battle of the Titans' story in this issue, which will settle the current Intel vs AMD dispute.

**digit**

## Lean and mean

Dear Vinit,

I have been reading your magazine for over two years and have an interesting observation: April 2000—254 pages with two free CDs; May 2002—126 pages with two free CDs. Probable scene in Q4 2002—two CDs with a 50-page magazine. Give me a break! Why don't you do a reader survey to find out whether we want free CDs or more pages in the magazine!

**Pritam S. Haobam**  
Via e-mail

Dear Pritam,  
And how would you factor in our current offer of five CDs with a regular 150-page magazine :-)?

**digit**

## Goof Ups

■ On page 76 of our May issue, we misquoted the price of the Neotech NKC-9999A wireless keyboard as Rs 335. Its correct price is Rs 1,475.

■ The story 'Good things in life are free' incorrectly mentioned a couple of Web sites: [www.retro-spec.co.uk](http://www.retro-spec.co.uk) is a dead link and <http://retroremakes.emuunlim.com> is actually <http://retro-remakes.emuunlim.com>.

■ In the table on page 52 (motherboard comparison test) we have incorrectly mentioned the Intel 845WN, Intel 845BG, Intel 845D, Intel 850GB and the Intel 850MD as chipsets. These are in fact motherboards based on the 845 and 850 chipset series. The table should have only mentioned Intel 845 (DDR SDRAM) and Intel 850 (RDRAM).

Notice any goof-ups? Write to [goof@jasubhai.com](mailto:goof@jasubhai.com)

Send your letters marked 'Readers Letters' to the Digit office:  
D-222/2, MIDC, TTC Industrial Estate, Om Sagar Building, Nerul, Navi Mumbai 400 706,  
Phone: 022-7629191/9200 Fax: 022-7629224  
E-mail: [readersletters@jasubhai.com](mailto:readersletters@jasubhai.com)

# Future of the PC

*Time and Technology wait for no one. Come take a peek into our magic crystal ball as we show you what the future holds for the PC in the coming year*

No more fat beige boxes, no more clutter with wires and cords, ample desk space without bulky CRTs. Is this what lies ahead?

Super powerful PCs, small and sexy form factors, thin and crisp looking TFTs, hands-free computing and wireless freedom is what we've always been promised. Now the time has come for these promises to deliver what we've always desired—a richer computing experience.

Right now we are staring straight into the end of an era in computing. Technologies and products that we are used to are almost at the end of their life-cycles and emerging technologies that are on the bleeding edge will become more common place.

By the beginning of next year we'll be ready to abandon the tried and tested interface for IDE drives. Also, most of the legacy ports that we see today at the back of our PC would be dead and buried. The PC, both internally and externally, is going to get a steroid shot in the arm that will put it firmly on the entertainment super highway. By the beginning of next year we will officially operate in multi-GHz territory and almost every device will transition to a faster and improved standard. But with this much-required facelift and makeover, the PC scene will become a little chaotic and the situation will only stabilise by mid-2003.

## Inside the box

### Power packed processors

In the past few months the processor manufacturing companies have only managed to get a foot in the door when it comes to GHz+ speeds. The pace has been rather slow with a lot of hiccups along the way. Starting next year, both AMD and Intel will churn out faster processors at shorter intervals, and the speeds will rise like nobody's business—imagine processors containing upwards of a billion transistors and running at speeds of over 4 GHz! Current generation CPUs are already being manufactured at an amazing 0.13 micron fabrication process and with the transition to 0.09 micron imminent, a billion transistor CPU isn't too far off—chances are you will find one in your PC next year. These GHz guzzling beasts will be powerful enough to provide as-real-as-it-gets 3D graphics, real-time capture of full-motion MPEG-2 video, and accurate voice recognition.

### Bandwidth busters

New and emerging memory technologies will be quenching the thirst for continuous data. Bandwidth will double with DDR II and QBM (Quad Band Memory) taking over from the existing standards. DDR II is the next evolution of the DDR standard. It will offer double the bandwidth of standard 200 MHz DDR (PC1600) by sampling at 4-bits per cycle compared to the current 2-bits. DDR II will debut at 400 MHz (100 MHz quad-pumped) and will offer a

whopping 6.4 GBps of bandwidth under dual-channel configurations. It's expected to be widely available by the beginning of next year.

Some say that even with this insane amount of bandwidth, the next generation of CPUs could face some bottlenecks. In steps QBM or Quad Band Memory that offers twice the bandwidth of DDR. But the beauty of QBM is that it can be implemented with any of today's standard DDR modules. With a QBM memory controller, a current generation DDR266 memory module (PC2100) will deliver 4.2 GBps, which is double its theoretical bandwidth. Compared to DDR II, QBM can scale faster, reaching PC5400 levels with existing DDR333 modules. Whatever the memory technology, processors won't have a reason to complain next year.

### Ga-Ga graphics

With bandwidth-consuming texture-rich games becoming more and more common, the current graphics platform will have to go through a serious upgrade to keep up. Also, every graphics card that will be released next year from nVidia and ATI will have integrated TnL (Transform and Lighting) along with programmable shaders support. The technology of shaders is being used in almost all new games that are being developed, which can cause the video memory bandwidth to become a severe bottleneck. This would be alleviated to a large degree with the introduction of AGP 8x.

The official name for AGP 8x is now



'AGP 3.0'. This is a 32-bit-wide parallel bus clocked at a whopping 533 MHz, offering a total bandwidth of about 2.1 GBps, doubling the currently available 1 GBps provided by AGP 4x. Sadly, AGP 8x isn't truly backwards compatible and in its current implementation doesn't support either AGP 1x or 2x signals, meaning older AGP 1x or 2x cards simply won't function in an AGP 8x system.

## Super storage

By the beginning of the coming year you'll find 200 GB drives as widespread as you find 40 GB drives today. We are already approaching the technical limitations of the current ATA standard; today's controllers cannot recognise drives larger than 137.4 GB as they use a 28-bit addressing system. New standards will adopt a 48-bit addressing system, raising the maximum drive capacity a million fold to 144 petabytes (a petabyte equals a million gigabytes). But some drive manufacturers want to take storage to almost unrealistic heights. IBM is using a new disk material, nicknamed 'pixie dust'. Placed between two layers of magnetic material, it helps data remain stable at very high densities and IBM is aiming for 500 GB to 600 GB four-platter desktop drives by 2003!

The only way to support such large and fast drives will be to transition from the existing Parallel ATA standard to Serial ATA (SATA). Serial ATA starts at a data transfer rate of 150 MBps and will soon migrate to 300 MBps and then to a whopping 600 MBps. It uses a thinner, more flexible cable that improves airflow and thereby facilitates the development of smaller form factor systems with better thermal designs. Also, 5,400-rpm drives will start their slow

and inevitable march into hard drive history, while 7,200-rpm drives will become the standard and will ensure that the SATA interface will be pushed to its limits. By the end of this year you will see third-party chipset solutions supporting SATA and by the beginning of next year SATA will be integrated into most mainstream motherboard chipsets.

## Perfect port ability

It's time to throw away your 700 MB CD-Rs! The price of DVD-Rs has dropped as low as Rs 300 per disc and DVD-Writers have already started appearing in the market. Beginning next year DVD-Writers will cost as low as Rs 15,000 and DVD-Rs as a storage medium will start replacing CD-Rs.

The best part is that by the middle of next year we'll see the adoption of DVD's successor—the Blu-ray disc. This 12-cm disc will be the same size as its DVD counterpart but will have a maximum capacity of 27 GB per side (compared with 4.7 GB for DVD discs) and a data transfer rate of 36 Mbps to accommodate high-definition content recording. The format would allow a disc to store more than 2 hours of High Definition video content and 13 hours of standard television broadcasts! To top it all, a double layer disc with up to 50 GB of storage capacity is also in the pipeline.

The final nail in the coffin for floppies is being hammered in by the new USB micro drives. These tiny Flash drives fit in the palm

of your hand and store up to 1 GB of data! Just plug it into a USB port and begin using it. These drives work seamlessly with any operating system, be it Macintosh, Linux or Windows and they don't even need any special device drivers.

## Idiot-proof interfaces

In a year's time the PC will no longer support legacy I/O ports. You will not find any PS/2, serial or parallel ports residing on the back plate of your PC. These will be replaced by high-speed USB 2.0 and IEEE-1394 (FireWire) ports that are nearly 40 times faster than USB 1.0 and over 500 times faster than parallel ports. You will no longer face problems interfacing cutting-edge digicams, MP3 players, digital video recorders and external storage devices with your PC. Scanners and printers too will join the faster USB revolution and will shed their old and rather slow parallel interfaces, allowing for faster

ILLUSTRATION: Ram

## On the desk

### Delightful displays

Thin Film Transistor (TFT) LCDs are here to stay but currently they lack the knockout punch to throw out CRT monitors. That knockout punch can only be delivered by price. Today, you can buy a decent 15-inch TFT screen for about Rs 35,000. This is way beyond most people's budgets, but with TFT manufacturing yields improving rapidly, by 2003, you will be able to buy a 15-inch TFT for as low as Rs 20,000 and a 17-inch TFT for around Rs 30,000!

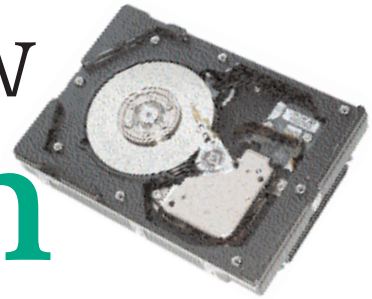
It's a no-brainer that in one year these

displays will become quite widespread and more and more PCs will be built using them. In the coming year, TFTs will truly come of age and will feature ultra fast response times. This means that there will be no smear or blurring in fast moving images, and games and movies will look crystal clear. Also, as the technology improves, it will solve most of the angle viewing limitations of today's TFTs and the next generation displays won't experience any image or contrast degradation when viewed from any angle.

### Worry-free wiring

True liberation and freedom from the clutter of wires that plagues all computer users will occur only when the PC sheds off its rather tangled backside. One of the few areas where the PC has advanced considerably has been the speedy introduction (and adoption) of wireless input devices. Wireless keyboards have taken us to the next level of typing freedom. These are relatively expensive and out of reach for most users, but with more manufacturers jumping onto this bandwagon, with newer and more innovative designs

# Storage in the new millennium



Higher areal density, faster spindle speeds, larger internal buffers, and lower failure rates all contribute to make hard drives faster and more reliable than ever before

The PC has made rapid advancements over the years and hard disk technology has improved steadily. Today's applications, be it games, multimedia, Internet or operating systems, all require fast, reliable and increasing storage solutions. Also the price of hard drives continues to decline and the cost per MB is at an all time low. The manufacturing technology has improved, leading to lower production costs, but so have market pressures and competition. Traditionally, product performance and quality determined which company captured an OEM's customers' business, but now performance and quality are a given and price is key. Drive prices have fallen to an all-time low in the personal computing end of the market with the advent of the sub Rs 30,000 personal computers. And more competition in the high-end enterprise sector is pressuring profit margins there too. Storage solutions for the new millennium are only going to get better.

## Games

Gaming has been redefined with the invention of monstrous graphics processors that give you the ultimate 3D experiences. These games require large amounts of storage space, either for installation or for playing. Games that were produced in the last decade did not require much space, being mostly 2D

games with limited image textures, and required very little graphics processing. The trailing edge of the last decade saw tremendous software and hardware development that lead rapid progress in game development. This, in effect, means that gaming evolved into a new entertainment segment where realistic and life-like experiences are the key aspects catered to.

### Games demand space!

If you are a *Wolfenstein* fanatic then

you can relate to the space requirements that the game demanded as it stepped from one version to another. The latest version, *Return to Castle Wolfenstein*, requires no less than 700 MB of space for a full install. Forced by these requirements you as a user need to upgrade your storage to load these games. The latest gaming engines have terrific space requirements as heavy graphics data is to be processed. Storage space is required to store and

## Speedy Solutions for Gamers

Seagate's Barracuda ATA IV disc drives deliver 7,200-rpm performance for desktops and entry-level ATA servers, with capacities up to 80 GB. The products feature all FDB motors for the quietest acoustics in the industry, superior reliability and the Ultra ATA/100 interface. These drives include Seagate's exclusive 3D Defense System and a three-year limited warranty.

### Features and benefits

- SoftSonic(TM) FDB motor on every drive—Quietest operation ever for a desktop 7,200-rpm drive
- 7,200-rpm desktop performance—High performance for PCs and entry-level ATA servers
- Ultra ATA/100 interface—Up to 100

### MBps burst transfer rate

- 350 Gs non-operating shock—Toughness and robustness
- 3D Defense System—Best reliability and handling damage protection
- 2 MB cache buffer—Fast data transfer rates
- DiscWizard software—Eases installation and maximises drive performance

### Distinctions

- Best combination of performance, acoustics and robustness
- 3D Defense System to protect users' data and increase reliability
- 2.4 bels idle acoustics—industry's best
- DiscWizard software for easy installation
- Best-in-class non-operating shock for excellent reliability

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swap the graphics data as and when required. Today, games are packed in two, three, four or even more CDs. You as a player would always prefer to play games without any interruption. But



New games like RTCW, demand over 700 MB of install space

what if you are constrained by storage? You would have to shift between CDs during the game, which no avid gamer likes. Since storage cost per MB has plummeted, buying a large capacity hard drive is not a costly affair.

### Downloads and Demos!

Game developers release trial versions of the games before the actual release of the product. These evaluation copies are available for download on the Internet or on CDs that accompany computing magazines. Every gaming enthusiast would prefer to try out such games before actually shelling out hard cash for a retail game. Typically the trial versions of the 3D games that are released will occupy a whopping 100 to 200 MB of storage space. Trying out such games that are available for free also requires enormous storage space.

### Performance

Game data processing involves swapping of data at high speeds. If data transfer rates are high and the hard disk has a high rpm, the latency would be less. This improves the sifting of data from the graphics processor to the storage device (and vice versa) at extremely fast rates

that in effect will drastically improve the performance of the game. We have hard disks of 5,400, 7,200, 10,000 and 15,000 rpm. Choose the best drive with a large capacity and high rpm that will answer both your storage requirements for games as well as performance issues.

### Game consoles

Gaming consoles today are packed with hard drives for the same purpose as mentioned above—to store gaming data (levels, characters, etc). You will be able to download game evaluations on to these drives for testing. Though these are fixed drives, the future will bring in more changes where you will have removable hard drives for such consoles, which will make gameplay easier. Storage device requirements will be ever growing in the gaming segment as we keep evolving in bringing more life into next generation games.

## Operating Systems

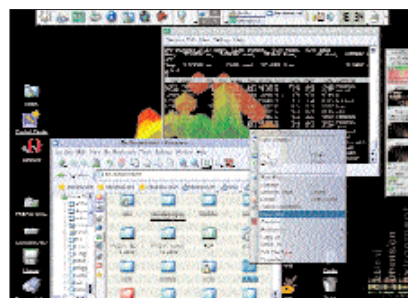
Take a look at any current generation operating system and you will find that not a single one has an install size of less than 1 GB. To top it all, Windows XP recommends a minimum install footprint of over 1.5 GB! Add general purpose programs, Office suites, along with the clutter of desktop utilities and you are struggling for free space on your 20 GB drive.

Today, personal computers have more than one operating system installed. These OSes are becoming increasingly sophisticated, as software vendors add features to their products. Likewise, the workload demand on these operating systems is growing, while users continue to demand that they be able to do more work in a shorter amount of time on their PCs. A multi-boot system would fill up a 20 GB drive in no time and for a true multi-boot system you would require multiple hard drives.

A hard drive can have as big an impact on your operating system's performance as your processor's speed. A 7,200-rpm hard drive outperforms an

## Interfacing with the Future

The only way to support large and fast hard drives will be to transition from the existing Parallel ATA standard to Serial ATA (SATA). Serial ATA starts at a data transfer rate of 150 MBps and will soon migrate to 300 MBps and then to a whopping 600 MBps. It uses a thinner, more flexible cable that improves airflow and thereby facilitates the development of smaller form factor systems with better thermal designs. The evolutionary Serial ATA interface is expected to be fully adopted throughout the rest of the hard drive industry by the end of 2003. Seagate has allied closely with top innovators like LSI Logic to develop the first design-ready SATA hard drive, and to lead the SATA standards effort. The result is a hard-drive interface built for the future from the ground up, which also ensures Parallel ATA software compatibility for an easy industry transition.



With a large drive you can multi-boot between multiple Operating Systems

equivalent 5,400-rpm drive by as much as 33 per cent in system-level tests. That means the core applications of the operating system function much faster and the response time is much improved. A general way to recommend a drive capacity for your system would be to use the following formula depending on your operating

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system, (size of your operating system + the applications you use) x 4.

### Linux on the desktop

This free operating system has stirred up a hornet's nest in the world of computing. Starting out as an operating system for the hardcore techie, Linux has made rapid strides in its ease of usability and is now accepted as a viable replacement to the dominance of Windows. From large corporations to first-time users, Linux is flexible enough to meet the needs of almost everyone. And people have woken up to this fact and are being tempted by the thousands to 'try' out this system. Obviously the easiest way to experience something new is when you're sure that you can revert back to your tried and tested path in case everything doesn't go according to plan. This is where a large hard disc can make a difference—as operating systems move on from single floppy setups to gigabyte installations it's imperative to have a large enough storage solution to accom-

modate multiple OSes. Linux now comes in a seven CD installation kit along with a plethora of bundled applications requiring more disk space than ever before!

### Internet

Windows rewrote the PC story, while the Internet revolutionised the access and sharing of information and data management. Assimilating and accumulating information from all over, the Internet has grown into a huge repository of data. The Internet is a central repository of information, ranging from text to high-end graphics and video—with servers that have petabytes of storage space to host and serve this information. This means larger and more reliable storage. The storage needs for such a distributed and diversified knowledgebase is quite obviously enormous.

Information available on the Internet is distributed across servers over the globe. These servers are powered by the latest storage technologies to serve faster and reliable information to their

customers. Storage is very important in mission critical applications where customer data has to be secured, stored, and delivered reliably. From large corporate servers to desktop computers the hard disc is responsible for facilitating the storage and exchange of information and data over this network. Without these storage mediums there would be no Internet so to speak. For example, servers running Web services cannot suffer a downtime. Such businesses need to have a reliable data storage device that must be rugged and robust, work under any conditions, and have a large MTBF (Mean Time Between Failure).

With large-scale enterprises and e-businesses growing exponentially, customers have started demanding faster and more reliable storage facilities in relatively higher capacities. This has led to a new business segment called 'Storage Service providers'. Storage space is rented for personal, commercial, and enterprise usage across the world. This requires faster hard drives that provide worthy

## Internet and the Enterprise

Seagate continues its lead in Enterprise Storage by pushing the envelope in both capacity and speed. Seagate's fifth generation of Cheetah products incorporates the best performance and technology in the industry. The fullest line of products in the enterprise market consists of the amazing new 15,000-rpm Cheetah X15 and the 10,000-rpm Cheetah 18XL, Cheetah 36LP/XL and the remarkable Cheetah 73LP. This family of Cheetah drives provides capacities from 9.2 to 73.4 GB in a 3.5-inch form factor for mainstream and high performance users. Interface options include Ultra160 SCSI and the new 2 Gbps fibre channel. Seagate has dramatically improved the Cheetah performance by delivering seek times as fast as 3.9 ms, latencies as low as 2 ms and an increase in data rates of up to 70 per cent over the previous generation.

### Cheetah disk drives are perfect for:

- Internet and e-commerce servers
- Data mining and data warehousing
- Mainframes and supercomputers
- Department/Enterprise servers and workstations
- Array storage subsystems
- Transaction processing
- Professional video
- Graphics and medical imaging

### Key features and benefits

The fifth generation Seagate team delivers Cheetah products that lead the industry in performance and IOPS (Input/Output Operations Per Second). 10K and 15K RPM spindle speeds provide Cheetah drives faster access to data. The Cheetah X15 has the fastest time to data in the industry with average seek times as low as 3.9 ms and 2 ms average latency!

Seagate's superior Ultra160 SCSI interface provides bus data rates up to 160 MBps, features 'Fairness' technology to eliminate bottlenecks and is backward compatible with previous versions of SCSI. 2 Gbps fibre channel offers extremely fast bus data rates of up to 400 MBps for a dual loop, and supports standard SCSI protocol, allowing easy interface transition. With up to 16 MB of cache, Cheetah products provide high performance in applications such as A/V, CAD, Pre-Press, and Imaging. Seagate's 3D Defense System, the most comprehensive drive protection system in the industry—Drive Defense, Data Defense and Diagnostic Defense—decreases handling damage, protects valuable data and provides alerts for potential problems.

# Seagate Ad



*The largest repository of information would not be as accessible if it weren't for search engines like google.com*

service to a majority of customers without any failure or disruption of service.

## Multimedia

Multimedia, non-linear video editing, and audio editing have had a long-standing relationship with the storage subsystem. Hard disk drives are a critical component to large multimedia design houses, editing workstations and video servers. Advances in drive technology have significantly boosted capacity, performance and reliability and at the same time these larger and speedier drives have become truly affordable. There is no doubt that digital video production and multimedia content creation are amongst the most challenging applications for hard disk drives. The sheer size of digital video files creates unparalleled storage requirements. A half-hour television show digitised for delivery and for broadcast can require up to 45 GB of storage! Through the years, with sustained and continuous incremental improvements, drives have become more and more an integral part of these systems.

Solving just the storage requirements of these applications isn't enough. This is primarily because digital video is a real time format, and the inability to store and retrieve video in real time causes loss of quality due to dropped frames or audio breaks and this is simply unacceptable to digital video producers. There is no way any multimedia content generating producer will tolerate glitches, spikes or audio breaks and the only way to solve

this to a degree is by increasing throughput. Part of this can be solved by increasing the areal density but a great deal depends on the speed at which the drives rotate. Increasing the rpm to 7,200 rpm, 10,000 and as high as 15,000 rpm brings forth some physical limitations and hence higher buffers with ECC are required.

Without the advancements made in



*Non-linear video editing apps like Adobe Premiere gobble up disk space faster than you can say 'ouch'!*

the field of storage, multimedia on the desktop would not have evolved this rapidly. As the computer moves from a productivity tool to become an entertainment appliance, even the commonest of home users demands a multimedia capable computer. This means that all PCs must now ship with obscenely large hard drives to meet the needs of users, be it for digital music or video.

## Conclusion

Of course, all these advancements in speed and storage capacities are inconsequential if the drives don't operate reliably in actual real world operation. With such large files and expensive data, a disk crash can be financially disastrous. Drive manufacturers therefore aggressively pursue reliability during drive design and manufacturing. Each new hard disk drive is designed to achieve specific reliability goals before shipping—each drive must pass performance

## Staying Ahead of the Curve

While Seagate is creating efficient new ways of building drives and reducing costs at the component and product level, the underlying technologies that go into disk drives are expected to evolve significantly and swiftly.

Since the drive industry began some 40 years ago, the critical driving metric has been areal density—the number of bits recorded on a square inch of the disk's surface. Disk drive companies are in a relentless race to increase areal density. Areal density has increased since the world's first disk drive in the late 1950s by over 10 million times—an improvement rate unparalleled by any industry in history! Today, areal density is increasing at about 100 per cent per year; nearly two times the rate of increase seen only a couple of years ago. To ensure that Seagate holds the lead position in this critical race, it has dramatically increased technical spending for head and disk R&D. Since 1996, Seagate has increased spending for recording head R&D by three times and for disks by nearly five times. Focused efforts by the Seagate team have the company jockeying for first place, as recent areal density demonstrations have shown.

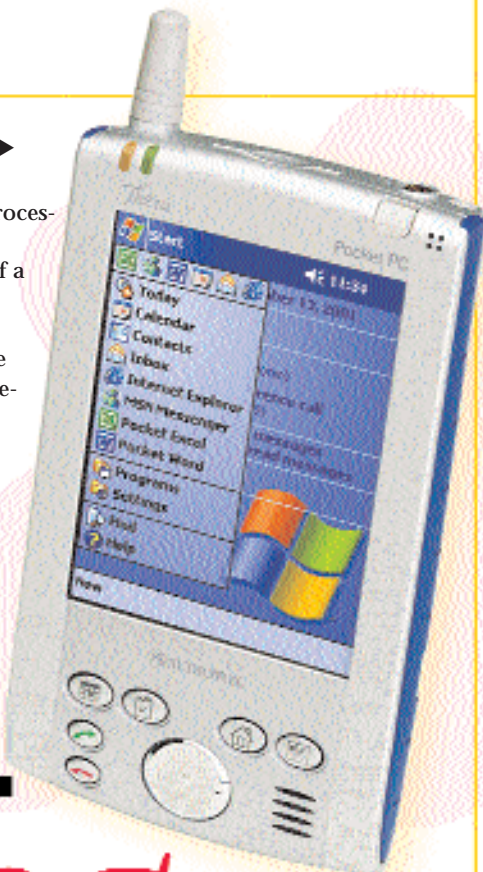
and stress tests at the extreme parameters of the drive's specifications, including tests for shock, temperature and operating environment. At the same time they are constantly working on ways to reduce the number of moving components in the drive, thereby reducing the risk of failure substantially. This dual focus on producing more reliable drives and monitoring critical operating parameters have combined to allow hard drives to meet the stringent uptime requirements of today's applications.

# Seagate Ad

### Audiovox Thera PDA-2032 ►► Super Combo

Powered by a 206 MHz Intel StrongARM Processor, 32 MB RAM and 32 MB ROM, the Audiovox Thera is a potent combination of a Pocket PC 2002 handheld with a built-in CDMA2000 1X compatible cell phone. In addition to making phone calls, this device will let users send instant messages, check e-mail, and browse the Web using the faster 1xRTT CDMA200 networks that should be coming online soon.

Web site: [www.audiovox.com](http://www.audiovox.com)

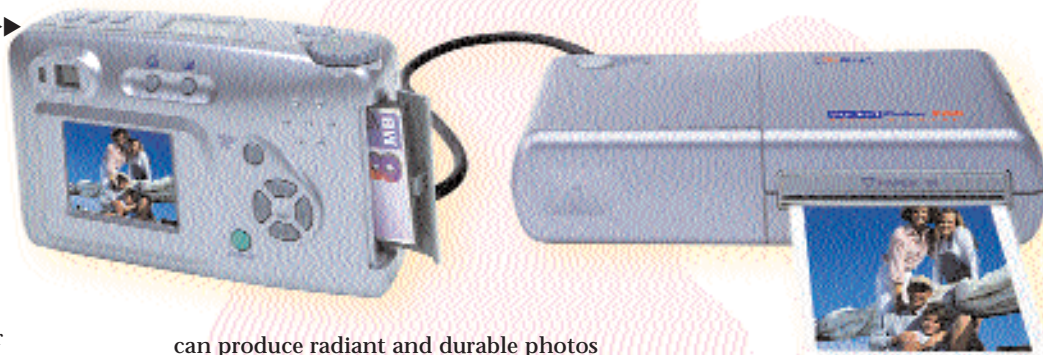


# digital dreams

Arouse your senses with these fantasy-inducing gadgets and experience pure digital bliss

### SiPix SP-1300 and PocketColor 200 Shoot and Share

This camera and printer package is just the thing that can make Polaroid cameras seem like yesterday's news. The SP-1300 is a 1.3 Mega pixel digital camera with a 2x digital zoom and a 1.8-inch colour LCD viewer, and comes with an 8 MB CompactFlash card that stores up to 110 images. When combined with the portable PocketColor 200 printer, you



can produce radiant and durable photos without the use of a computer. Simply plug the SP-1300 to the PocketColor 200 with a USB cable and get instant prints!

Web site: [www.sipixdigital.com](http://www.sipixdigital.com)

### DVD-2800



PRO FX presents  
The World's First DVD Player  
with PureProgressive Scan

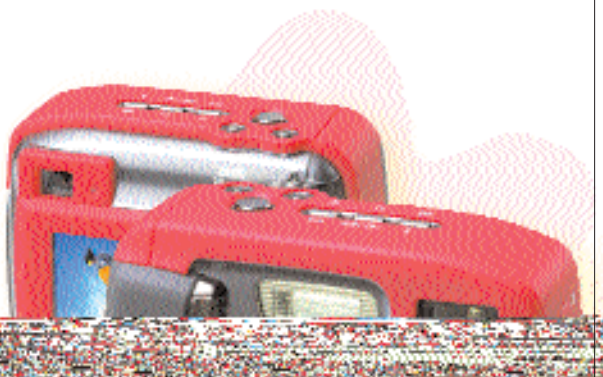


### Casio GV-10 ►►

#### Splish. Splash.

The GV-10 is a totally new type of digital camera whose water-resistant, dust-resistant, and shock-resistant design revolutionises the concept of a camera as a delicate device that requires special handling. Of course, the GV-10 is also packed with powerful digital imaging features and functions—it's a 1.23 Mega pixel (1,600x960) digital camera with 2x digital zoom, 8 MB CompactFlash storage, USB connectivity and a 1.6-inch TFT colour display.

Web site: [www.casio.com](http://www.casio.com)



### ▼ Panasonic SL-MP35

#### Non-stop music

Using just two AA alkaline batteries, the SL-MP35 can deliver up to 40 hours of MP3 playback and up to 30 hours of CD music before requiring a battery change. In addition to playing audio CDs, you can enjoy MP3 music that has been recorded on CD-R or CD-RW disks. The SL-MP35 features Panasonic's 'No Skip' Anti-Skip System with a 48-second memory buffer for skip-free music along with a large, easy-to-read dot matrix LCD that's located at the top of the player.

Web site: [www.panasonic.com](http://www.panasonic.com)

### ▲ Kodak mc3

#### ▲ Pocket-sized entertainment

Measuring a scant 2.6x4.1 inches, the Kodak mc3 is a cool pocket player that lets you shoot digital video or still pictures and even allows you to play your favourite MP3s. The mc3 can record more than 20 minutes of non-stop video in QuickTime format on a 64 MB CompactFlash card and can hold over 600 still images in VGA resolution. The mc3 is a fully functional MP3 player and is upgradeable for future Internet music formats.

Web site: [www.kodak.com](http://www.kodak.com)







































































anyone make changes without authorisation. The level of security can be changed from 'standard' for desktop users to 'high', 'higher' and 'paranoid', if the PC is going to be used as a server. You can tweak your desktop resolution and the colour depth but the changes will be effective only after a reboot. In the Control Center you can even check the list of hardware installed on the system. Clicking the 'Hardware list' button will indicate whether or not the device has been detected properly. The boot sequence can also be changed if you wish to log in as a different user and with a different Windows manager.

There are 16 desktops available, out of which four are on the screen by default. Other GUIs that come bundled with Mandrake 8.2 are GNOME, IceWM and Sawfish. These can be selected at the login screen.

### 'Psuedo Explorer'

KDE's Konqueror acts, feels and behaves just like Windows Explorer. It allows you to browse to the various folders and files and makes file management much simpler. The Konqueror interface also works as a Web browser and its configuration process is similar to how you would configure other Windows-based Web browsers. Konqueror functions as your one-stop interface for browsing through the network, the file system and the Internet. One can browse the

network by typing `smb://machinename` from within Konqueror itself.

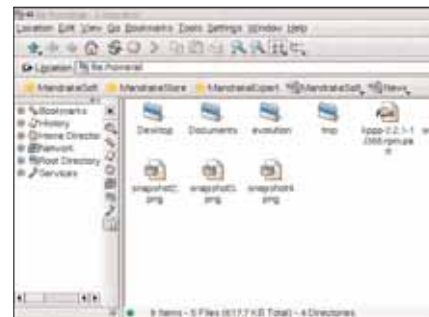
### Bundled applications

The operating system comes standard with a few powerful applications such as XMMS 1.2.6 for playing and managing your MP3 music files. Mozilla 0.9.8 comes built-in. Though the 0.9.9 engine is out, this one is stable enough. GIMP 1.2.3, the all powerful image editing software, allows you to create and manipulate photos with ease. Gphoto2 gives you additional functionality to manage your digital photos. Grip 2.98 is your standard audio ripping software. KOffice 1.1.1 integrates all the necessary office applications and Gnomemeeting 0.84 is the fully featured video conferencing software.

Evolution 1.02 is the built-in mail client, and is very similar to Outlook. It's very easy to configure—just give the necessary incoming and outgoing mail server addresses. Supply the relevant e-mail address and passwords and you are done—it's as simple as configuring Microsoft's Outlook or Outlook Express.

### Server side tools

In addition to desktop enhancements, Mandrake 8.2 also offers significant benefits when used as a server. Many new server applications and configuration utilities have now been integrated.



The Konqueror interface looks like Windows Explorer

The Enterprise Kernel 2.4.18 now provides native support for very high memory configurations (greater than 1024 MB) and has support for SMP (Symmetric Multi Processing). It also has support for file systems like Ext3, ReiserFS, XFS and JFS, as well as an encrypted file system to ensure data integrity. A special version of Samba combined with XFS and Samba 2.2.3 now allow Windows file sharing. Also available are a plethora of server side applications such as Apache 1.3.23, PHP 4.1.2, MySQL 3.23.47, PostgreSQL 7.2 and Sendmail 8.12.1.

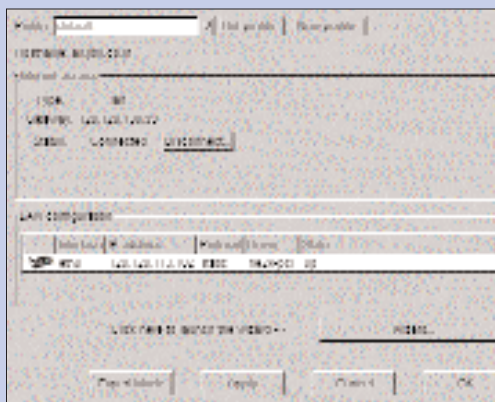
Wizards for easy configuration of the main server functions such as Firewall, File and Print sharing, etc have also been provided. Draknet, a network configuration tool, provides a simple way to set up Internet connection sharing. You can configure DNS, Samba, NFS, local/remote

## Configuring the Network Card

One of the best things about Mandrake 8.2 is that it detects most of the hardware and doesn't ask for drivers. We tested Mandrake 8.2 on a system which had a Realtek RTL8029AS-based LAN card.

Click on the Control Center to configure the network card. You will be prompted for the root password. Now, click on the 'Network and Internet' tab, and then on 'Connection'. Here you can see the card as eth0 below the 'Interface' tab. Click on the 'Wizard' tab and select the profile. Leave the profile as default if you are configuring only the LAN card.

If you also want to configure a modem on the same machine, you will have to create two separate profiles. The next window that opens up will present you with five different options; here click on 'LAN connection'. When you select it, the small checkbox against this option becomes hollow, so don't get confused. Click 'Next'; this will bring up the 'Draknet' window,



On correct installation, the network card shows a 'Connected' status

showing the name of the network card installed and you will be prompted to install another network card. Click 'Yes' if you have two network cards on your system; click 'No' if only one card is installed. After the card is detected, 'Draknet' will

ask for the IP address and the Net-mask. You can get this information from your system administrator. The next step is to provide the DNS (domain name server) and gateway details along with the host name. In the subsequent windows, provide the HTTP/FTP proxy address, if there is one, and click 'Next'.

After you get a confirmation of successful configuration of the network card, click 'Finish'. To test whether or not the network is working, go to Control Center and click on 'Samba Mount Point'. In the next window, click on the 'Search Servers' tab.

The names of the machines on the network will be displayed on the left hand side. Try to mount any of the shared folders to ensure that your network card is working okay.



## Setting up your Modem

If you are using an external modem, there is a good chance that it will be installed on its own without asking for any drivers. But if you are using an internal modem, follow these simple steps to set it up:

**1** In the Mandrake Control Center, click on the 'Network and Internet' tab. If there is only a modem connected to the machine, go ahead with the default profile, else create a new profile and name it appropriately. The next window will have three options: 'Choose profile to configure', 'Auto detect' and 'Expert mode'.

**2** Use 'Auto detect' as it will detect the modem automatically and display the

information regarding where it is connected. Click 'Next'.

**3** The 'Control Center' will present you with the configuration window. Click 'OK' to feed in the required information.

**4** In the 'Dial-up' option box, give the phone number you use to connect to your ISP and your login name and password.

**5** Mandrake will bring you back to the first screen, from which you can test the modem connection. The Control Center will display information such as the data sent and received, and will show the status of the modem (whether it's connected or not).

file systems and more from any computer with a secure browser connection. Automated software management systems URPMI (and APT) provide a hassle-free way to install and upgrade applications and Auto-Install tools duplicate servers and workstations effortlessly.

### Conclusion

There is little doubt that Mandrake 8.2 is the easiest Linux distribution to install and has a very friendly desktop interface. There were absolutely no compatibility issues. From GeForce2 Ultra 64 MB cards to printers, scanners, serial modems and USB


### Mandrake 8.2

A-

Performance	▶▶▶▶▶▶▶▶▶▶
Ease of Use	▶▶▶▶▶▶▶▶▶▶
Value for Money	▶▶▶▶▶▶▶▶▶▶
Features	▶▶▶▶▶▶▶▶▶▶
OVERALL	▶▶▶▶▶▶▶▶▶▶

**Price:** Freeware, \$69 (approx Rs 3,450) for a retail box with manual

**Contact:** [www.mandrake.com](http://www.mandrake.com)

mice, everything was detected without any trouble. It displayed rock solid stability except for the odd sluggish response. We were constantly struck by a feeling of déjà vu while browsing through the Control Center, which is probably the best thing that happened to Linux, making it simple to set up and configure your system. Mandrake has done a lot of work in cleaning up the user interface and making Linux much more intuitive and user friendly. All in all, Mandrake 8.2 is the best Mandrake release ever. If you want a free office suite with a super stable operating system and fully featured server tools, then there is little that you can argue about. This latest release makes Mandrake a definite candidate for the top spot in the hard fought war for the desktop Linux distribution of choice. 

DIGIT TEST CENTRE

1/2 page H. AD

# Picture Perfect

## Photoshop



Or is it? Here's a close look at some of the new features and enhancements in Photoshop 7

**P**hotoshop was launched 12 years ago and over the years it has been constantly upgraded to suit people's needs. The first version that shipped in 1990 had a full palette of tools for creating images from scratch, as well as for editing, altering and enhancing images. With Photoshop 2.0 came features meant for black-and-white image editing and pre-press colour-separation tasks. Photoshop 3 saw the introduction of layers and new

colour-correction tools. Further enhancements such as watermarking, layer adjustments, and actions that streamlined your work were seen in its next release. Photoshop 5 and 5.5 introduced 'Undo' capabilities, 'History' palette, 'Vertical Text', 'Magnetic Lasso' tool and an all-new image editing package, 'Image Ready', for creating animations. Photoshop 6 was a killer app of sorts with features such as integrated vector drawing tools, new dockable

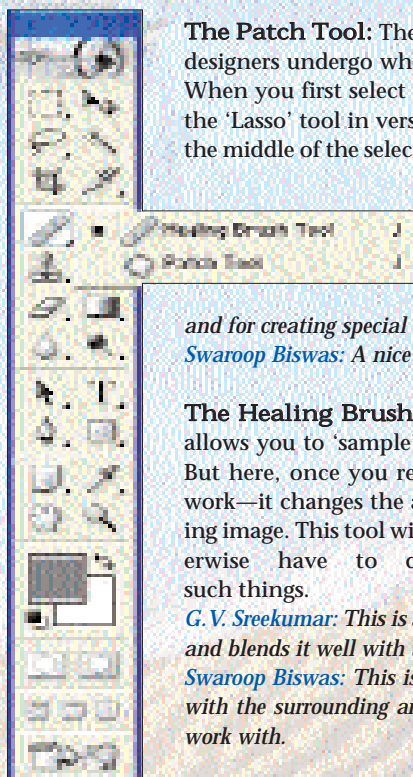
toolbar, text warping and enhanced layer management.

So what exactly does Adobe have in store for you with the release of Photoshop 7? We tested the software and also asked for expert opinions from G.V. Sreekumar, Faculty Member, Industrial Design Centre, IIT-Powai, and Swaroop Biswas, Manager-Design, Jasubhai Digital Media. Let's take a peek at the all-new Photoshop 7 and explore its worthiness.

**Toolbar:** The first thing you notice when you open Photoshop 7 is the elegant toolbar. It is similar to the one in Photoshop 6 but the palette and icons now have a 3D look. Each tool icon generates colour when you hover your mouse over it. As for the tool palette, nothing much has changed except that the 'Air brush' tool has now been accommodated into the 'Paint brush' tool option. The 'Text' tool has a few extra choices that were a part of the extra toolbar in the previous version. Similarly, the 'Slice' tool options have been revamped and are no longer available in the dockable extra toolbar that rests right below the menu.

**G.V. Sreekumar:** The 3D look doesn't add any value. The old toolbar, which looks crisp and clear, was better.

**Swaroop Biswas:** Though there are 3D icons, they don't make much of a difference to a designer. Moreover, they make the program a bit heavy.



**The Patch Tool:** The inclusion of this tool will reduce some of the trouble that designers undergo when trying to achieve accuracy while manipulating images. When you first select this tool, it gives you a lasso cursor, which works just like the 'Lasso' tool in version 6. However, after making a selection, you can click in the middle of the selected area and then drag it to a new location. Photoshop then blends this dragged information into the underlying image in an attempt to blend in the brightness, colour and texture of the surrounding information. This tool makes for effortless manipulation of images.

**G.V. Sreekumar:** Useful while restoring damaged photographs and for creating special effects. Results can be very dramatic.

**Swaroop Biswas:** A nice addition, but it is a feature that is not often used.

**The Healing Brush:** The 'Healing brush', similar to the 'Rubber Stamp' tool, allows you to 'sample' from one area of an image and apply it somewhere else. But here, once you release the mouse button, Photoshop does the rest of the work—it changes the area you retouched so as to blend it in with the surrounding image. This tool will be well appreciated by the digital imagist who would otherwise have to devote copious amounts of time in perfecting such things.

**G.V. Sreekumar:** This is a useful tool. It intelligently retouches the area around the image and blends it well with the surroundings. Useful for beginners.

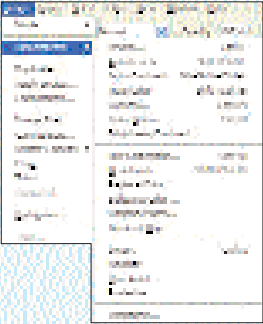
**Swaroop Biswas:** This is a nice addition. It not only clones the area but also merges it with the surrounding area and makes one's work much simpler. However, it's slow to work with.

**File Browser:** Earlier, browsing for new images while working in Photoshop was rather inconvenient. But the new File Browser lets you search and view images while working in Photoshop itself. Viewing images from the File Browser provides Metadata about images displayed such as the date on which it was created/modified, and also Exchangeable Image File (EXIF) information from digital cameras. You can rotate, batch rename, rank and sort your images from the File Browser.









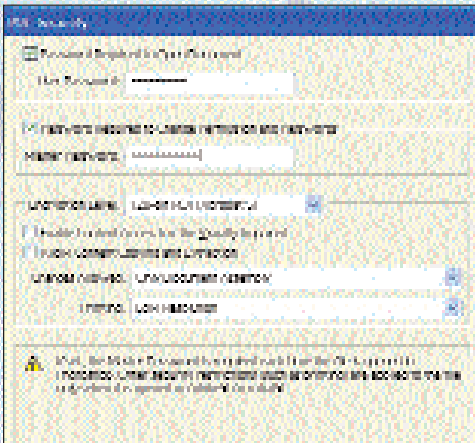
**Auto Colour:** This new feature completes Adobe Photoshop's set of automated colour correction tools. You can automatically remove colour casts from images as it adjusts the contrast and colour of an image with a slightly different algorithm than the 'Auto Levels' command.

**G.V. Sreekumar:** *A good feature for beginners, but it cannot be a substitute for the colour correction work done by*

*professionals. Since this is based on a set of rules, the results might not be the same in all images. I tried this feature in five images, out of which three came out with better results.*

**Swaroop Biswas:** *This feature is quite helpful.*

**Protect and Share Images:** Most designers would be sceptical about sharing images as they might be modified by the person accessing them. Considering this, Adobe has come up with a reasonably good security feature where in one can save the file in PDF format, and set a password to view it, change the content or print the image. With 128-bit encryption, it becomes very difficult to crack the password.



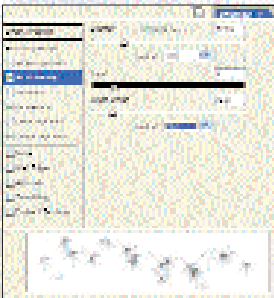
**G.V. Sreekumar:** *An excellent feature. For example, in a publishing house like Digit, the digital imaging artist can share images with others involved in the production, at the same time restricting certain users from retouching any images.*

**Swaroop Biswas:** *With this feature, exchanging images is much safer now.*

**Newer Paint tools:** With amazingly realistic dry and wet brush effects, you can simulate traditional painting techniques. Creating customised brush shapes is easier now with settings for shape, tilt, spacing, scatter, jitter, diameter, texture, etc. The preset brush styles make it a pleasure to add special effects such as adding grass or leaves.

**G.V. Sreekumar:** *Fans of Fractal Painter will have to seriously consider having a look at this! Options like Dry Media, Special Effects, Thick Heavy and Wet Media are very useful for professional illustrators who work on Photoshop and switch to Painter for special effects.*

**Swaroop Biswas:** *Now the brush effects are much easier to generate.*



## Improved Features

**Picture Package:** The enhancements made to the 'Picture Package' feature are designed to save time and money while printing images. You can add text and labels to images and you can now print more than one image per page and output images either as one flattened document or in separate layers.

**Scripting plugin:** You can automate repetitive tasks and key workflows using the rich scripting support. This can be downloaded from Adobe's Web site.

**Larger pane for viewing filter effects:** Version 7 gives you a considerably larger viewing pane while applying filter effects.

**Rename layers:** You can rename a layer by simply double-clicking on the layer name in the layer palette and typing directly on screen.

**Fill, Blending and Opacity:** There are two separate options for increasing or decreasing the opacity and the amount of colour filled in the object. This is helpful in decreasing the opacity levels of the fill applied to an object without affecting the other parts of an object.

New blending modes such as 'Vivid', 'Linear' and 'Pin light' have also been introduced in this version.

**Support for newer operating systems:** This version of Photoshop is fully compatible with all the newer operating systems such as Windows XP and Mac OS X.

**Preset Image Sizes:** The latest version of Photoshop comes with various preset sizes to create documents. Although a minor improvement, it is quite helpful.

**Vector Shapes:** Dealing with vector shapes in Photoshop 6 was rather confusing. In version 7, every time you draw a shape a new layer is automatically created instead of your having to add that shape to the original layer. This allows one to create layer masks using the 'Pen' tool, which is extremely useful in creating cutouts without making any change to the original image.

## The bottomline

All said and done, is it worth upgrading to Photoshop 7? The addition of a few new tools and a couple of enhancements will, in all

Parameters	Photoshop 6.01	Photoshop 7
Start up time	22 seconds	23.5 seconds
Memory consumption	23 MB	30 MB
Time taken to complete PS5 filter test	458.10 seconds	437.8 seconds

probability, not make much of a difference to your working environment if you are an amateur user. But the value of these improvements will definitely be recognised by hardcore professionals who use this software on a regular basis. These 'minor' enhancements will allow digital

Photoshop 7	
Performance	▶▶▶▶▶ A-
Ease of Use	▶▶▶▶▶
Value for Money	▶▶▶▶▶
Features	▶▶▶▶▶
OVERALL	▶▶▶▶▶

**Contact:** Adobe Systems India P Ltd  
**Phone:** 0128-4532026  
**Price:** Rs 31,500 (upgrade Rs 7,800)  
**E-mail:** sandeepm@adobe.com  
**Web site:** www.adobe.com

imaging artists to achieve greater accuracy levels while manipulating images in less time. ■

MITUL MEHTA

**System Requirements:**  
Pentium III or 4 processor; Windows 98/98 SE/Me/NT with Service Pack 6a/2000 with Service Pack 2/XP; 128 MB RAM (192 MB recommended); 280 MB free hard disk space; 800x600 colour monitor with 16-bit colour video card



# Bazaar

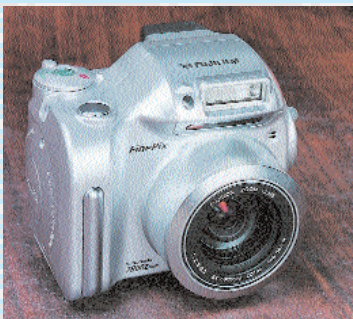


We test the latest and the best hardware and software available in the market

## Fuji FinePix 2800 Zoom

Very photogenic

If you're looking for a digital camera that delivers professional-quality images yet doesn't require you to have an in-depth understanding of photography, then this device fits the bill. It features an intuitive menu system that allows you to change certain parameters of the camera such as the flash mode, image quality and the mode of connectivity with a computer. The camera links to the computer through a USB interface and can also be used as a Web cam. When connected, it shows up as a standard drive in Windows, allowing you to simply drag and drop images from it. This is a completely automatic camera that takes



away the drudgery of setting parameters such as exposure of the image and flash, literally making it point-and-shoot. However, advanced users can override the camera's automatic features by selecting the manual mode, where these aspects can be individually modified. The thumbwheel switch at the top of the camera lets you

quickly switch between preview, playback and video modes. Both the electronic as well as the TFT viewfinders are very sharp and all modes of operation of the camera are superimposed on the display for an easy view of the current mode of operation. The camera's macro setting is especially impressive—it lets you get really close to your subject to capture details. The quality of the image in this mode and during normal photography was impressive with sharp detailing and good contrast and colour balance. The bundled software provides a user friendly interface for transferring images. Battery consumption was the only real downside to this camera; it can chew through four AA-size batteries in about 3 hours of usage time. However, the camera does incorporate

power saving features and can be set to shut off if not used for more than 30 seconds. With brilliant image quality, intuitive controls and a great set of features, this camera packs in a lot of quality for its price.

**Price:** Rs 30,000 + taxes  
**Contact:** Jindal Photo Films  
**Phone:** 022-8504949  
**E-mail:** rawat@jindals.com  
**Web site:** www.fujifilm.com

### SPECIFICATIONS

2.1 Megapixel CCD sensor, 16 MB Compact Flash memory, 1600x1200 at 72 dpi maximum image capture, 6x optical zoom, can record AVI clips with sound, USB interface

Fuji FinePix 2800 Zoom		A-
Performance	★★★★★	
Build Quality	★★★★★	
Value for Money	★★★★★	
Features	★★★★★	
OVERALL	★★★★★	

## HP LaserJet 1000 series

Speedy printer

The LaserJet 1000 series is the latest offering from HP and can churn out 10 pages per minute. This printer can reach a maximum print resolution of 600 dpi for professional-quality monochrome printing. The



LaserJet 1000 performed decently when tested for quality and speed, taking 4 minutes 50 seconds to print 50 sheets of plain text. Its warm-up time of 15 seconds may seem high if just one sheet is to be printed but wouldn't be much of a concern if you require continuous printing. A 26 MB PDF file with text and graphics was printed in less than 20 seconds, which is above average.

The printer driver doesn't have too many options besides the standard page setting and print quality configurations. You can select a dpi



Marco D'Souza  
Head, Test Centre

Excellent optics coupled with a load of features make the Fuji FinePix 2800 Zoom an excellent choice

setting from among three meagre options—300 dpi, Custom and EconoMode. You can also print formats such as Envelope and choose different paper sizes.

The cartridge slides out along with the cover when you open it. The LaserJet 1000 sports a parallel interface but

**Price:** Rs 17,500  
**Contact:** HP India  
**Phone:** 011-6826000  
**E-mail:** tarunjeet\_sarao@hp.com  
**Web site:** www.hpindia.com

## SmartDraw 6.0 Standard Edition

Easy draw

Professional flowcharts, network diagrams, floor plans and more...SmartDraw 6.0 allows for easy creation of all the above. The program comes with an Explorer type template viewer, which proves quite handy while selecting and using the various templates provided. Another plus point of this application is its ability to download templates as and when required, giving you a lot of flexibility in case of a space crunch. It supports various file formats including PDF, JPEG, TIFF, HTML, WMF and GIF, to name a few.

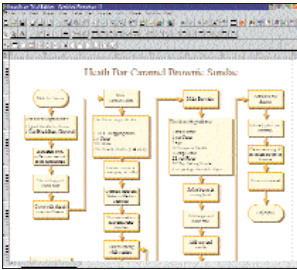
Another noteworthy feature is its ability to integrate Office suite files like Microsoft Word, Excel and PowerPoint. For mathematical calculations, you can also incorporate equations and special symbols not generally supported by the keyboard. It also allows you to create timeline calendars in the form of Gantt charts, yearly timelines or a monthly calendar. With around 11 categories of templates and with each category having around five to seven different samples, this software has one of the most elaborative lists.

**Price:** Rs 3,312 Standard, Rs 6,192 Professional and Rs 9,504 Professional Plus (approx prices). There's also a 30-day shareware version.  
**Web site:** www.smartdraw.com

comes bundled with a parallel to USB converter so that the printer can also be used on a USB port.

**SPECIFICATIONS**  
10 pages per minute, parallel/USB 1.1 interface, 600 dpi resolution, HP PCL 5e print language

HP LaserJet 1000 series					B
Performance	►	►	►	►	
Build Quality	►	►	►	►	
Value for Money	►	►	►	►	
Features	►	►	►	►	
OVERALL	►	►	►	►	



However, every time you start the program for a new design, the application takes you to the template selection screen, which is rather cumbersome.

This software is available in three different versions: the Standard version with 1000 symbols; the Professional version with 1000 standard symbols plus features supporting MS applications as well as file import and export facility; and the Professional Plus with all the professional features and a collection of 11 symbol categories including Business, Networks, Engineering and Maps.

**SPECIFICATIONS**  
Works with Windows 95/98/Me/2000 and XP, needs a minimum of 30 MB free disk space

SmartDraw 6.0					B+
Performance	►	►	►	►	
Ease of use	►	►	►	►	
Value for Money	►	►	►	►	
Features	►	►	►	►	
OVERALL	►	►	►	►	

## Sony Multiscan E230

For the professional



The E230 is a 17-inch true flat screen monitor with a 0.25 mm aperture grille pitch. It has a neat joystick-style OSD interface for setting the various parameters. The monitor did very well in the geometry test, showing perfectly straight lines. This can be attributed to the aperture grille technology used in the monitor. It produced colours precisely and its clarity was perfect. However, it did show some signs of weakness in the streaking and ghosting tests, with a little ghosting visible near the white and

**Price:** Rs 23,000  
**Contact:** Rashi Peripherals  
**Phone:** 022-8260258  
**E-mail:** ho@rptechindia.com  
**Web site:** www.sony.com

yellow colour bands. There was also a slight white as well as black level shift and the edges appeared blurred. In the horizontal bar resolution test the gap between two bars was not visible, which made a distinct moiré pattern. The monitor fared well in the dark screen test with hardly any reflections visible in the background.

The E230 comes bundled with just a quick start manual and a power cord. This monitor would be suitable for the professional who works with high-end CAD/CAM, imaging and 3D authoring applications. Its price, however, is a bit steep.

**SPECIFICATIONS**  
Resolution of 1600x1200 at 68 Hz, 0.25 mm stripe pitch, 30-85 KHz horizontal frequency, 40-170 Hz vertical frequency

Sony Multiscan E230					B
Performance	►	►	►	►	
Build Quality	►	►	►	►	
Value for Money	►	►	►	►	
Features	►	►	►	►	
OVERALL	►	►	►	►	

## Nikon COOLPIX 775

Just right for the amateur photographer

This camera sports a cool 2.14-Megapixel capable CCD that helps you take photographs at a maximum resolution of 1600x1200 pixels. It offers three resolutions: 1600x1200, 1024x768 and 640x480. It can also capture short videos (15 seconds maximum) at a rather paltry 15 frames per second. You can select from seven white balance modes depending on the lighting conditions. It offers three capture modes: single, continuous, and multi-shot (16 frames at 400x300 pixel resolution). It's compactly



designed and fits into the palm snugly. All the buttons are well within reach of the thumb and index finger. Transferring images to the PC is very easy,



The camera cannot directly save images in the TIFF format and the images may get patchy, especially when there are gradual variations in tone and colour. Distant photographs using maximum zoom showed a slight pixelation. The bundled software, Canto Cumulus 5.0, is used to transfer images from the camera as well as for basic image editing. The installation was hassle free and the camera was detected instantly.

## SWiSH 2.0

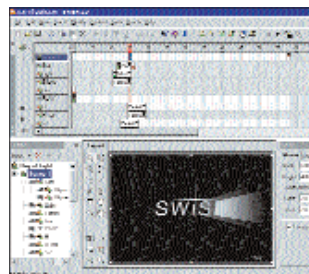
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### Flash it around

One problem you might face with this software is its inability to export your work in GIF format. The other feature it lacks is image compatibility; SWiSH is only good for its intended pur-

The lightweight and rechargeable Lithium-Ion battery makes it easy to carry the camera around for outdoor photography. The different modes in which the images can be captured assure good quality pictures, both indoors and outdoors. This camera is well suited for the enthusiast and amateur photographer. But professionals will have to look at other high-end cameras with at least a 4-Megapixel CCD.

Nikon COOLPIX 775					
Performance	►	►	►	►	►
Build Quality	►	►	►	►	►
Value for Money	►	►	►	►	►
Features	►	►	►	►	►
<b>OVERALL</b>	►	►	►	►	►



This version includes Movie, Scene, Transform and Action tabs that were not available in earlier versions. SWiSH 2.0 delivers a 'kindergarten' level text 'fx' solution for Flash wannabes.

<b>SWISH 2.0</b>						<b>A-</b>
Performance	▲	▲	▲	▲	▲	▲
Ease of use	▲	▲	▲	▲	▲	▲
Value for Money	▲	▲	▲	▲	▲	▲
Features	▲	▲	▲	▲	▲	▲
<b>OVERALL</b>	▲	▲	▲	▲	▲	▲

This optical mouse has one very unique feature. It has a fingerprint recognition system integrated into it. This USB mouse, when attached to your system, scans the finger you use to operate the mouse with and then creates a user account. The bundled software can even be configured to scan more than one finger. This is an important feature because if your finger is hurt, the mouse will not allow you to access the system. It is therefore advisable to have at least two accounts (two fingerprints) per machine.

**Price:** Rs 13,900  
**Contact:** Antrix Tech Zone  
**Phone:** 022-8061531  
**E-mail:** [antrix@vsnl.net](mailto:antrix@vsnl.net)



ily member so that the machine would not be inaccessible if you're not around. Conversely, if security is paramount, there is no way another user would be able to access the system. This mouse is a great buy for users who are satisfied with adequate functionality as a pointing device, but need additional security for the critical information stored on their computer.

USB interface, optical pointing mechanism, programmable button, finger print recognition

EyeD OptiMouse						B+
Performance	▶	▶	▶	▶	▶	
Build Quality	▶	▶	▶	▶	▶	
Value for Money	▶	▶	▶	▶	▶	
Features	▶	▶	▶	▶	▶	
OVERALL	▶	▶	▶	▶	▶	

**T**his MP3 player sports a radical design and is created for people on the move. Targeted specifically at sports persons, this digital audio player can be strapped onto your arm with the included arm-band and offers an hour of MP3 digital audio encoded at 128 Kbps. The main unit is completely moulded in a rubber coating, making it resistant to moisture and heat. This makes the player

Controls for Play, Forward, Volume, etc are located on the base unit. It's linked to an in-line controller that also features the LCD display, which shows information about the track and the mode that the player is operating in. The headphones,



though compact, are based on the in-the-ear format and the sound quality is quite average. The 'mids' and the 'highs' were exaggerated, and the sound lacked in bass response. This is a common shortcoming among headphones of this kind. Also, the display on the in-line controller is very small and you need to scroll across it to read the information, which makes it rather cumbersome. The bundled CD includes MusicMatch Jukebox for encoding MP3s and for transferring songs to the player. Setting up the player was very

**Price:** Rs 23,500

**Price:** Rs 25,500  
**Contact:** Nike India

**Phone:** 011-6816752

**E-mail:** [niketiming@rediffmail.com](mailto:niketiming@rediffmail.com)

Web site: [www.nike.com](http://www.nike.com)

simple because of the USB interface and there was no problem in configuring it.

This player has a very arresting design, but there are other players with similar specifications that you can buy at a significantly lower cost.

## SPECIFICATIONS

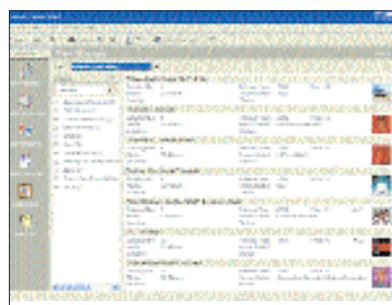
64 MB onboard memory, expandable to 128 MB; support for MP3 or Windows Media Audio (WMA) audio formats; Play, Stop, Forward/Back, Scan Forward/Back, and four preset equaliser settings; USB interface; in-line remote control with LCD display

Nike PSA[Play120]		B
Performance	►►►►►►	
Build Quality	►►►►►►	
Value for Money	►►►►►►	
Features	►►►►►►	
OVERALL	►►►►►►	

## Music Label 2002

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Your music album



information from the Net and create a database.

After scanning the MP3 files in our test, we found a lot of spelling mistakes. This could create problems later on when you enter the name of a song or artist while searching for a particular MP3.

Music Label allows you to print CD covers from within the utility. You can program the 'Organizer' feature to remind you of releases and purchases, as well as CDs that you may have loaned to friends.

This software is best for audio freaks who have a lot of music on their PC.

## SPECIFICATIONS

6.11 MB file size, works with Windows 95/98/Me/2000 and XP

Music Label 2002		B
Performance	►►►►►►►►	
Ease of use	►►►►►►►►	
Value for Money	►►►►►►►►	
Features	►►►►►►►►	
<b>OVERALL</b>	►►►►►►►►	

## Fujitsu P-1030

Well connected

The P-1030 is probably the smallest and the most compact laptop that we've come across to date. This laptop comes bundled with Microsoft Windows XP Home Edition. The unusual feature of this laptop is its screen size, which uses a 16:9 aspect ratio and makes watching movies simply fantastic. This Lithium Ion powered notebook has a decent battery life of about 1 hour 51 minutes when tested with BatteryMark 4.0.1. The coolest feature, though, is that this tiny device is Bluetooth enabled, which means it can connect wirelessly with other Bluetooth devices. The keyboard buttons are soft and silent but using the pointing device is not all that easy as the pointer is quite hard and difficult to manoeuvre. The graphics subsystem, powered by ATI's Rage Mobility video chip, wasn't able to run *Quake III* in spite of having 8 MB of video

**Price:** Rs 1,10,000

**Contact:** ACI INFOCOM

Phone: 022-8266031

**E-mail:** [jason@aciinfo.com](mailto:jason@aciinfo.com)

Web site: [www.fujitsu.com](http://www.fujitsu.com)



memory. The bottom of the laptop heated up a bit when used for more than an hour.

The Fujitsu P-1030 is extremely light and easily fits into even the smallest of hands. The LAN and built-in modem makes connecting to the network and the Internet an easy task. Included with the unit is a cable that lets you use an external display system such as a CRT or an LCD monitor. However, there is no CD-ROM or floppy drive, which is standard in most laptops.

## SPECIFICATIONS

Transmeta Crusoe 700 MHz processor, 128 MB RAM, 20 GB hard disk drive, 8.9-inch TFT screen

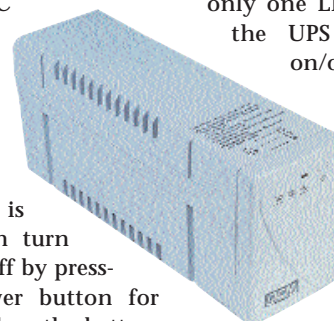
Fujitsu P-1030					B+
Performance	▶	▶	▶	▶	▶
Build Quality	▶	▶	▶	▶	▶
Value for Money	▶	▶	▶	▶	▶
Features	▶	▶	▶	▶	▶
<b>OVERALL</b>	▶	▶	▶	▶	▶

## POWERCOM BNT600VA UPS

## Protection against blackouts

The BNT600VA enjoys a very compact design, and plugging it to the PC is quite simple. This UPS has only two AC outlets; you can plug in only two loads, for example a PC and a scanner or a monitor. The UPS starts beeping the moment the main power is lost. You can turn these beeps off by pressing the power button for 3 seconds. When the battery

is low, the UPS beeps faster; this happens only when the battery power falls below 20 per cent, thereby warning you to save your work and shut down the PC. There is only one LED indicator on the UPS displaying its on/off status.



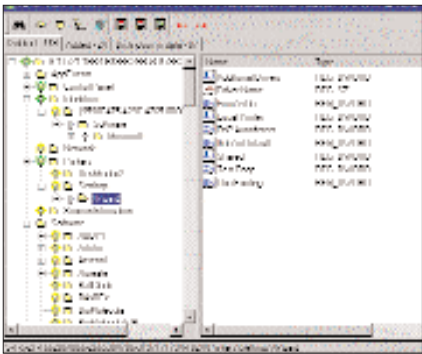
The UPS does not come bundled with any monitoring software (there is no RS-232 support which

would let you connect the UPS to your computer and monitor its functions). It comes with a built-in surge protector for telephones. The compact design makes it easy to accommodate anywhere. The unit is light-

**Price:** Rs 4,500  
**Contact:** Kunhar Peripherals  
**Phone:** 022-2345758  
**E-mail:** salesbom@kunhar.com  
**Web site:** www.kunhar.com

## Advanced Registry Tracer (ART)

Simplifies registry editing



**A**dvance Registry Tracer (ART), is a registry editing and managing tool. Compared to other registry monitoring applications (Regmon and WinExpose), ART compares full copies of the registry made at different times, whereas the above-mentioned software monitor all access to the registry within a certain period of time using date filters. Also, the registry entries can be stored in a database format, making it convenient for you to import them in any spreadsheet application.

Another plus is that you can compare between the two registry entries saved and diagnose the problem area. With support for almost all major Windows operating systems including XP, 2000

**Price:** Rs 2,000 (approx)  
**Web site:** www.elscomsoft.com

weight and can be moved around easily.

### SPECIFICATIONS

600VA, 20-30 minutes backup time, line interactive type, input voltage 220V, output voltage 220V, 1 ms transfer time

POWERCOM BNT600VA		B
Performance	▶▶▶▶▶▶	
Build Quality	▶▶▶▶▶▶	
Value for Money	▶▶▶▶▶▶	
Features	▶▶▶▶▶▶	
OVERALL	▶▶▶▶▶▶	

and NT, it could be one of the preferred tools for system administrators.

This program can also detect Trojan viruses and eliminate some problems caused by software and hardware. Remote registry management is another option,

which advanced users would appreciate in a networked environment.

Novice users might find its interface, which is similar to Windows' own proprietary registry editor, a bit confusing, and the Help files do not throw much light on the matter either.

This software is quite a handy tool for system administrators and users who install and uninstall a whole bunch of applications which would tend to degrade the performance of a system.

### SPECIFICATIONS

Windows 95 and above, 16 MB RAM and 5 MB free hard disk space

Advanced Registry Tracer		B
Performance	▶▶▶▶▶▶	
Ease of Use	▶▶▶▶▶▶	
Value for Money	▶▶▶▶▶▶	
Features	▶▶▶▶▶▶	
OVERALL	▶▶▶▶▶▶	

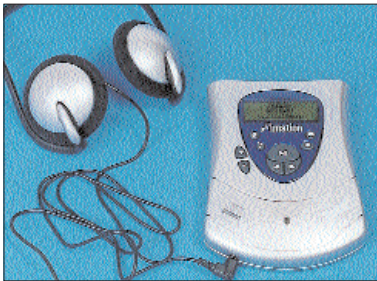
## Imation RipGo!

Jack of all trades

**R**ipGo! is a 3-in-1 device that can function as an MP3 player, CD-Writer and CD-ROM drive. You can use it as an MP3 player while jogging or connect it to the PC as a full-fledged 4x external CD-Writer and CD-ROM drive. It's probably one of the smallest CD-Writers available. The drive uses 8-cm CD-R disks, which can store up to 185 MB of data. It is capable of playing MP3, WMA, MPEG, and AVI files. The best thing about this device is that it comes with a rechargeable Lithium Ion battery—this feature is not offered by other MP3 players.

RipGo! can play music continuously for 3 hours and there is no skipping as it stores up to 8 MB of data (music) in the buffer and plays it from there. This also helps save on battery usage. The LCD screen is reasonably big and also features a spectrum analyzer. Of course, compared to a fully featured MP3 player, the RipGo! lacks many features. The device is light and can

**Price:** Rs. 18,000  
**Contact:** Imation  
**Phone:** 022-8377053  
**E-mail:** imation@bom3.vsnl.net.in  
**Web site:** www.imation.com



also double as an optical drive, which can be plugged to a computer using a USB interface. The only problem one might face is that 8-cm CD-R disks are not freely available. Another negative point is that the RipGo! offers less capacity, but costs at least 30 per cent more than a regular 700 MB CD-R based MP3 player.

This hybrid device will attract people of all ages—a teenager who can use it as an MP3 player or a sales executive who can plug it into a PC and burn important sales reports.

### SPECIFICATIONS

8 MB flash buffer, uses 185 MB 8-cm CD-R disks, 4x writing speed

Imation RipGo!		A-
Performance	▶▶▶▶▶▶	
Build Quality	▶▶▶▶▶▶	
Value for Money	▶▶▶▶▶▶	
Features	▶▶▶▶▶▶	
OVERALL	▶▶▶▶▶▶	



**Aliasgar Pardawala**  
Reviewer, Test Centre

**Imation RipGo! is a portable optical drive that plays MP3 and other music formats and also doubles up as a CD-Writer**



# Go East

Agent 001 scoures Singapore for the best deals in hardware

We've seen our Lamington Roads, Nehru Places and Manish Markets crammed with computer hardware, electronic gadgets, cheap deals and friendly dealers. Now imagine a place that has electronic and computer equipment stacked one on top of the other for six full floors!

Welcome to Sim Lim Square, a shopping mall on Rochar Canal Road, Singapore, which enjoys the rather overburdening reputation of being the Mecca for computer hardware and electronic gadgets in South East Asia. The entire gamut of gadgetry is here: PCs, peripherals, HiFi Audio/Video, DVDs, cell phones, software, etc.

So how does it compare with the *desi* hotbeds of hardware? For one, you can buy the absolute latest in computer hardware. No waiting lists—if it's released, it's here! I found the Intel Pentium 4 2.4 GHz, Athlon XP 2100+ and 120 GB hard drives along with top-of-the-line GeForce4s, Xboxes, PS2s and other droolable hardware! Add to that the dozens of small vendors clamouring for your attention and you know you'll get the best deals. Unlike most Indian dealers, these guys won't take you for a ride and have intimate knowledge about the products, their releases and revisions. So even if you aren't tech-savvy, they will help you make the right choice. They are also aware of

problem products and advise against buying particular products if they've had higher than average return rates.

## Fourth floor ho!

The fourth floor mainly deals with computer equipment and that's where I spent most of my time. Almost everything is cheaper here. From motherboards to hard drives to memory to processors, you'll end up saving a bundle on almost every PC component. You can buy an IBM Deskstar 120GXP 40 GB 7,200-rpm drive for as low as S\$150 (approx Rs 4,000), 40x CD-Writers are available for around



ILLUSTRATION: Mahesh Benlar

Rs 4,000, and a 512 MB stick of DDR memory is available for just Rs 7,000. Compare this to the 10,000 bucks you would have to shell out for the same amount of memory in India and you'll soon be singing my tune.

Even I was amazed at some of the things that I managed to find: a 256 MB module of the Corsair XMS3000, the world's fastest memory, running at a whopping 370 MHz! It was available for S\$265 (approx Rs 7,000). Also for sale were the newly released GeForce4 Ti4600 video cards. These were being sold for around Rs 20,000. These cards aren't available in India yet and when launched will cost nothing less than Rs 35,000. I even found some exotic cooling solutions



■ Buying mobile phones is generally not recommended because of negligible price differences.

■ When you buy computer hardware, ensure that it works. Some shops allow you to test the parts, while others refuse to even let you open the package.

■ Every thing that you purchase from Singapore will be taxable at 3 per cent GST (Goods and Services Tax). This can be refunded if you spend above a particular value in the same store. Refunds can be collected at the airport, so be sure to get proper bills made at the time of purchase.

■ Check the prices online at [www.hardwarezone.com](http://www.hardwarezone.com), [www.vr-zone.com](http://www.vr-zone.com), and also look around at other stores before making a purchase decision.

■ Bargaining of about S\$10-15 is permissible.

■ Most of the electronics are rated at 220 volts, 50 Hz. Double check before making a purchase.

■ Refrain from buying fragile items like hard drives due to the high risk involved while transporting them back home.

like the Cooler Master HHC-001, all copper heat sinks and various water-cooling kits—pretty handy if you're the over-clocking type.

But the highlight turned out to be the specially designed combos of motherboards, processors and RAM that guarantee huge savings—sometimes up to 20 per cent on the original MRP. You can get a Pentium 4 1.6A and ASUS P4B266-C combination for S\$490 (approx Rs 13,000). This bundle alone saves you over 25 per cent on the Indian pricing, which would come to around Rs 17,000. On the AMD front, an Athlon XP 2000+ along with the feature-packed MSI KT3Ultra ARU board (based on the KT333 chipset) was selling for S\$545 (approx Rs 15,000)!

## To buy or not to buy

So should we all run to Singapore to fulfill our computing needs? Not really. Whether the trip is really worth it will depend on the current exchange rate and the amount of custom duty you'd end up paying. There is also the significant risk of no warranty and after-sales service. Remember that you'll have to bear all shipping costs to Singapore and back in case something goes wrong. ☹



## Game Treat

Dreaming of playing high-end 3D games on a low budget? You can now purchase a Pine Excalibur

GeForce2 MX 400 64MB DDR card for just Rs 3,650! Go frag some!

# Wirefree

## Connectivity

Emerging wireless networking technologies are ready to cut you free

The PC is the centre of your digital universe, and it ties this universe together with the tangled cables of the information age. The mess of wiring behind your computer could all be gone, the cable sticking out of your PC Card Ethernet adapter could be unnecessary, the PDA cradle sitting on your desk could be counting sheep in your bottom drawer, and of course, you could be working while sipping on a Pina Colada by the seaside. All you need is a couple of little upgrades...to wirefree connectivity. Every single cable you see on your desk has a wireless equivalent just itching to replace it.

### Zoning the world

Information connectivity can be conceptually divided into three zones, based upon the distance it needs to span. The shortest zone is the one immediately around you, your personal space. Let's assume you have a cell phone/PDA in one pocket, and an MP3 player hooked to your belt. Now before you hit the road you need to Hotsync your PDA and backup your phonebook and also download fresh music to your MP3 player. For this you first need to disentangle the cables and then connect the cables for each of your mobile devices. But, if you have a Personal Area Network (PAN) powered with say, Bluetooth, then all you need to do is simply point and click! A Wireless PAN is like a next-generation Infrared, far more sophisticated and far more capable, that creates a kind of 'data-island' over a short radius for your information. It will connect all your personally accessible devices, plus eliminate all wires from your desktop

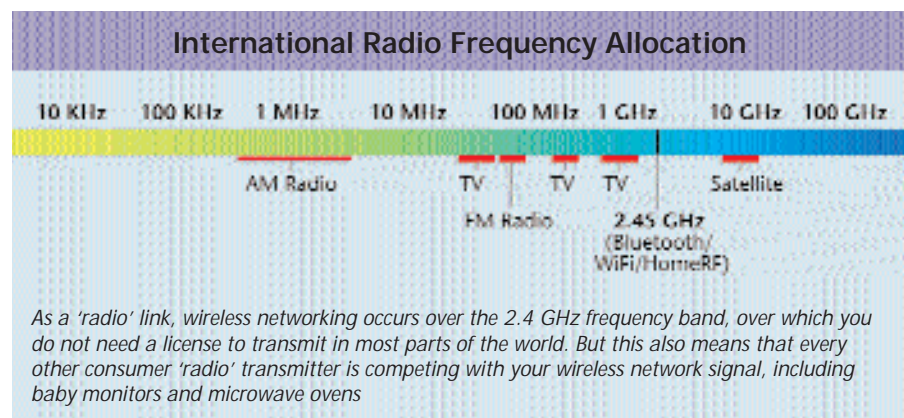
for the printer or scanner or digital camera or any device that needs to exchange data with any other. Bluetooth is now being incorporated into many personal devices including top-range PDA models and cellular phones, as well as laptops.

Local Area Networks (LAN) with wires like the one you are plugged into right now continue to be the mainstay of networking infrastructure. Yet if you are the type who carries your computing device, a laptop or one of the newer PDAs around, you could walk into to your office and automatically get on the company network using IEEE802.11 wireless technology. With a range of up to 300 metres, LANs offer high-speed permanent connectivity to other 'data-islands'. Equipped with a PC Card for your laptop or a CF Card based Wireless LAN (WLAN) adapter for your PocketPC device, you'd be all set to network with your counterparts in any location within your building.

However, on the road you are unlikely to find WLAN connectivity as easily as the connectivity you could get over the

cell phone network. With the launch of digital GPRS services, data connectivity over long distances is much more convenient. Connections over long distances are the domain of Wide Area Networks (WAN) that connect far-flung devices, and even complete networks, to each other. What could be more convenient than a laptop that connects to the WLAN in the office as you walk in, and seamlessly switches to GPRS as you walk out, leaving you permanently connected no matter where you go?!

As business-oriented technologies, these three are the ones you can expect to use the most. But home networking is another ball-game altogether. At home, you have a wide range of devices that are all wired at some point, some communication oriented, some information/entertainment oriented, all with different needs. Yet there are many benefits to be



INFOGRAPHICS: Jaya Shetty



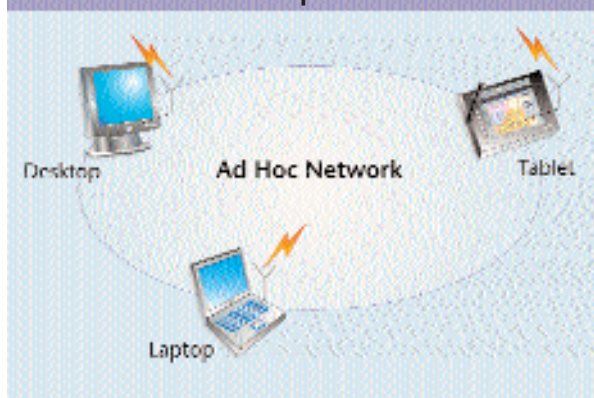
had by connecting them all together. For example, you could be talking to your buddy over a DECT (Digital Enhanced Cordless Technologies) standard cordless connection while listening to music over speakers that are connected wirelessly to an amplifier, which is controlled via your computer that you are also using to surf the Net through a wireless home gateway. All of this can be handled by one wireless network that fills the air in your house. Analyse the needs—the connection has to maintain telephone-quality sound to the DECT telephone device, while streaming real-time audio over a high priority band to the speakers in your room and handle your Web browsing at the same time. Conventional networks would be hard put to juggle this mixed traffic. Yet, HomeRF WLANs can do all this with ease.

The best part about all of this wireless business is that it's a snap to set up and use. As the end-user, you need not ever consciously twiddle with switches and configuration options—it's all automatic. Bluetooth devices find each other, exchange their capabilities and set up private connections. Laptops with wireless connectivity authenticate themselves and join the nearest open WLANs or any other computers that wish to exchange data. And with multimode adapters, your network technology hand-off occurs seamlessly from PAN to LAN to WAN and all the way back without any intervention on your part. However, as with any technology it's always good to know what's going on under the hood.

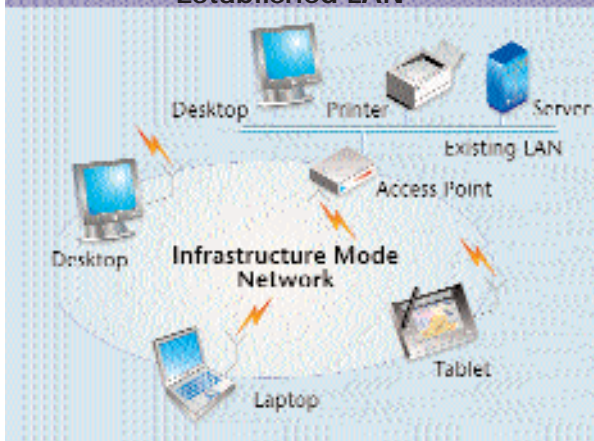
### Local networking with WiFi

IEEE usually sets computer networking standards under the 802 umbrella. The 802.11 wireless standard has been around for many years, but it's only with 802.11b that it has become popular. The 802.11b standard has a range of up to 300 metres and a data transfer speed of 11 Mbps over the 2.4 GHz frequency band. Compliant devices are accorded the WiFi (Wireless Fidelity) logo by the Wireless LAN Association (WLANA). These networks work in two modes, Ad Hoc and Infrastructure. When a computer fitted with an 802.11b interface is brought within range of

### Automatic Point-to-point Connections



### Connecting to the Services of an Established LAN



another similarly equipped computer, both of them register each other's presence and communicate directly. A third computer will find both the existing computers and open connections to each of them separately and directly. When any of these moves out of range, it will simply be dropped from the network. This automatic, ungoverned behaviour constitutes Ad Hoc networking. If a computer is to connect with the rest of the wired world, its wireless connection must be to an Access Point. Access Points can be wired into an existing LAN, providing infrastructure connectivity to the mobile device, for services such as corporate applications, intranets and Internet access. An Access Point also behaves like a repeater, which amplifies and retransmits the network signal, doubling the range of the wireless network. Networks that include Access Points to conventional wired networks are called Infrastructure networks. Because of the way 802.11b divides its frequency range, no more than three Access Points should overlap or they will cause interference

and the performance of the network will begin to degrade. 802.11b networks also suffer from other interference problems because of the frequency band they work on.

### Concerns with WiFi

WLANs work over line-of-sight, but the high-power signals can easily spill out of intended usage areas. This makes these networks rather easy to snoop on (see box, 'Drive-by Hackings') and difficult to protect. As a basic measure, WiFi includes an encryption system called Wired Equivalent Privacy (WEP). WEP encrypts each transmitted packet, but this system suffers from a few major weaknesses that render it useless against any but the most casual hackers. As a result, a new standard for security is now being deployed, called 802.1x that allows for more standard authentication schemes like Kerberos and RADIUS and greater security through proven technologies such as VPNs.

The 11 Mbps speed of 802.11b is as fast as an older co-axial cable based LAN but only one-tenth the speed of the current 100BaseT 100 Mbps networks. While that may

not be blazing, it's quite adequate bandwidth for most business users. For people with higher bandwidth needs, a newer standard called 802.11a is now available, bringing speeds of up to 54 Mbps while reducing the range. Networks following this standard operate in the 5 GHz frequency band, making them incompatible with the 802.11b networks that operate over 2.4 GHz frequency band. 802.11a networks can also be packed closer; up to 12 overlapping networks can safely co-exist. While many networking companies support 802.11a, a third standard—802.11g—seeks to bring higher speed to the 2.4 GHz band, but this is not yet finalised. So there will soon be three standards vying for dominance: 802.11b (WiFi), 802.11a and 802.11g.

### Quick connect with Bluetooth

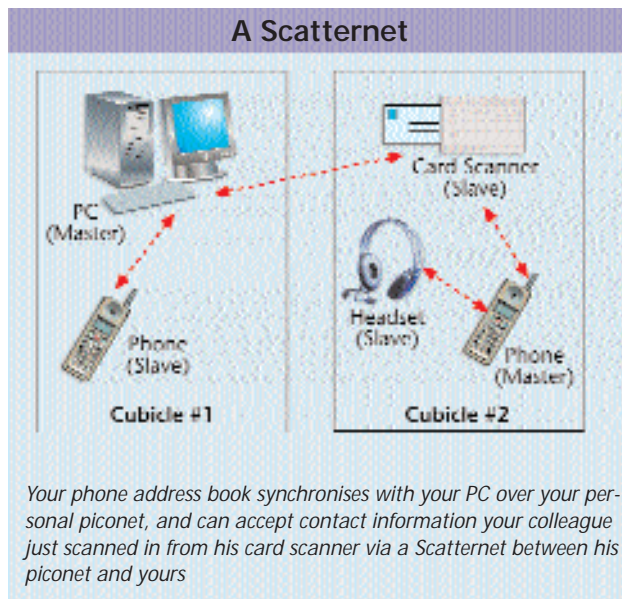
Fortunately there isn't such an embarrassment of choices with PANs. As things stand today, Bluetooth rules for wireless connectivity. Bluetooth originated at Ericsson, to answer their needs for connecting handsets conveniently to a range of

accessories, so it's not very surprising that the first commercial Bluetooth product was an Ericsson hands-free headset. Now, Bluetooth is managed by a large consortium including all the major cell phone manufacturers and many other hardware and software companies, with dozens of products available for a variety of purposes. Bluetooth has a very clearly defined zone of activity—it connects personal devices.

When two Bluetooth devices are brought within range of each other they automatically negotiate a network. More devices can be added to the network or removed at will. One of the devices becomes the Master and regulates the traffic over the ad-hoc network. Up to eight devices can form one network, sharing communications and bandwidth in a configuration called a 'piconet'—a tiny network. In any given area there can be multiple such piconets, and where they need to communicate with other piconets, they can do so across designated devices like gateways. These larger networks are called 'Scatternets'. Bluetooth also operates in the

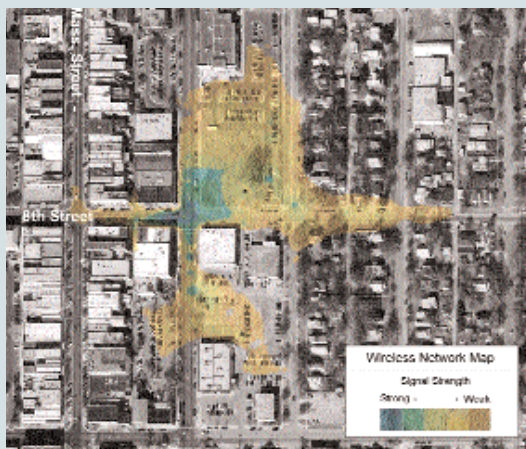
2.4 GHz frequency band, but it uses the band in a Frequency Hopping mode. It uses 79 1-MHz bands, with each transmission lasting less than a second over any one band. The next transmission is over another band. Thus by rapidly jumping around, Bluetooth avoids interference problems between piconets or other devices in the same band.

With a normal range of 10 metres and peak transfer speeds below 800 KBps Bluetooth isn't designed for much more than replacing local wires. That doesn't stop people from trying though, and there is a wide misconception that Bluetooth will replace all your wireless networking needs. Obviously, that is not possible. But to prove the



## Drive-by Hackings

According to an International Chamber of Commerce report, 92 percent of the 5,000 wireless networks in London freely hand out connections to all comers, providing Internet access and transferring data unencrypted even though there's rudimentary encryption built into all WiFi (Wireless Fidelity) devices. Interestingly,



the firm performing the survey gathered data by simply driving around the streets of London with a WiFi laptop and a long-range antenna. Even more interestingly,

such long-range antennae can be made out of any suitable metallic tube (e.g. cans of Pringles wafers).

In the early days of computer networking, uninformed companies had banks of modems waiting for any incoming connections. Hackers searching for these open connections would scan entire area codes, a process commonly called 'war-dialling'. The 'in' thing now is 'war-driving'. The equipment is commonplace and affordable, the bounties rich and easy. It is quite common for a network to have firewalls on the Internet connection, yet the backdoor of the wireless network provider has unrestricted access to the backbone infrastructure. People often do not realise the extent that a wireless network can spill over, well outside the buildings it's installed in. Two researchers from Kansas University came up with a technique for mapping wireless network signals ([www.ittc.ku.edu/wlan/](http://www.ittc.ku.edu/wlan/)) producing images like the one you see here of a commercial network.

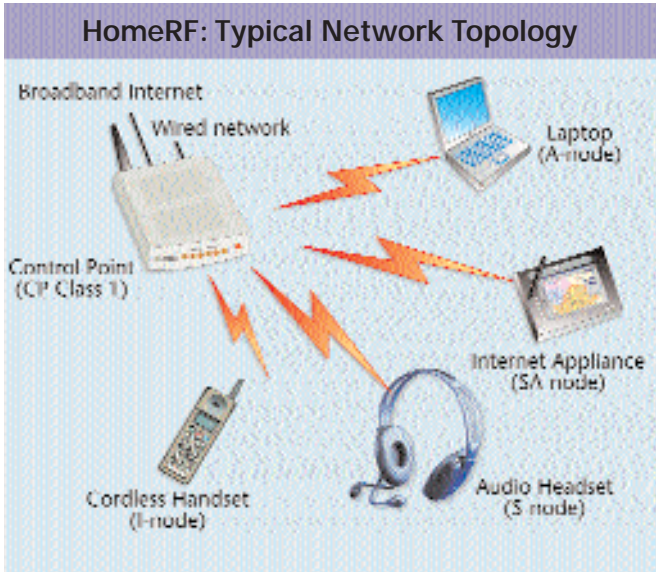
point, Toshiba has a portable storage device that connects via Bluetooth. It will be excruciatingly slow, but it's a concept. The 5 GB hard disk based appliance will work out-of-the-box—just place it in the same room as a Bluetooth equipped computer or a network. And Bluetooth-enabling your computer could be as easy as plugging in a key-sized USB device from D-Link. More to the point are Bluetooth-enabled PDAs, laptops and cell phones. Equipped thus, the road warrior could be online via the cell phone still in his pocket—no hassles with IR ports needing careful aiming and alignment.

The problem with Bluetooth is that it demands a chip in every device, which balloons up the cost. As volumes ramp up, costs are expected to come down to more affordable levels in a year or two, but be prepared to pay a premium for the convenience it offers until then.

## Home free with HomeRF

HomeRF tries to replace all cables in the home except the power lines. Based on a combination of DECT voice technology, and 802.11 networking, it aims to connect phones, entertainment devices, such as your TV and stereo systems, and your information access systems, computers and Internet gateways. With such a combination, you could route connections from your phone to your PC to your TV set-top box. You could even use the DECT cordless phone to talk to your PC, as a mobile headset replacement. With





appropriate software, you could use this to voice-command your PC to wirelessly control your home environment, or simply call 'Grandma'.

HomeRF too works in the 2.4 GHz frequency range, and operates in point-to-point mode (Ad Hoc) where devices within range can simply access each other over either TCP/IP or DECT interfaces.

otherwise, traffic generated while surfing the Net would have the same priority as the voice call and would interrupt the conversation. In HomeRF the network detects the type of traffic and ensures that important data is delivered in real-time disregarding what happens with other data. HomeRF kits are a little cheaper than 802.11b, and with their additional

The key differentiator with HomeRF is QoS (Quality of Service) support for prioritised traffic. Regular networks are 'dumb' in that they make no assumptions about the data they carry. They simply forward it as it comes through. When you have streaming audio, or a phone conversation occurring, any delays in data transmission would be immediately noticeable. On a regular network, wireless or

features it may be the network you want to use at home.

**The big picture**

All three technologies are tested and available today. And yes, the potential is as exciting as you can imagine, maybe more. Yet, beyond niche applications we may not see them in India for a while. Bluetooth has been three years in coming and 802.11 is only just picking up momentum. That too may be slowed down till early next year because of the standards. But most importantly, there needs to be a killer application for wireless before we can see it deployed widely.

As things stand right now, businesses might adopt wireless networking only for the convenience factor, a luxury for their small mobile employee base. However, wireless equipment costs are already approaching ethernet equipment prices of only a couple of years ago. With increasing volumes, lower prices combined with the ease of deployment mean that in the long term, wireless will eventually dominate its cable dependant competitors in all but the highest performance networks. ■

SUMOD HAJELA



# A Hex on the Evil Eye

Dabbling in voodoo and reciting magical incantations may not help all that much towards protecting your PC. To be really effective, here's what you need

**I**ntrusion has many forms. You may have the latest and best security systems, or a fierce guard dog to keep your home safe. But some forms of intrusion go unnoticed in spite of all the hi-tech security gadgetry. Take for instance all that valuable data that you have stored on your desktop PC. Is it safe from people who can use your PC for pushing pirated software and illicit activities such as hacking? Is your credit card account information and all those intimate e-mails safe from prying eyes? Here are a few simple steps to ensure that your computer is not broken into.

While these steps will not make your system completely intruder proof, they will help towards keeping most Peeping Toms from accessing your machine without your permission.

## Talismans for Windows

Boot passwords are a somewhat effective, albeit low-level method of security. However, boot passwords can be over-ridden by resetting jumpers or removing the CMOS battery. Another simple security measure you can implement is to have a password protected screensaver. But bear in mind that getting past the screensaver password is as simple as restarting the PC! A more secure method is to use a 'Windows Lock', which requires a user ID and password to access a PC.

Windows NT, 2000 and XP have inbuilt Windows Locks and user management, which can be used to restrict access to your PC. You need to provide a username and password to gain access. However, it's a different story with Windows 95/98. Security was not a highly

rated issue when Microsoft designed these operating systems. Nevertheless, System Policy Editor (Poedit.exe) is a tool included with Windows 9x that helps you set user access and privileges. You can install it from your Windows 95/98 installation CD by going to *Settings > Add/Remove Programs*. Click on the 'Windows Setup' tab and then on 'Have Disk'. Browse to `\admin\apptools\poedit` in Windows 95, or to `\reskit\netadmin\poedit` in Windows 98, for accessing the poedit.inf or grouppol.inf files (depending on your Windows version) and install the System Policy Editor. Restart your PC and set the user privileges you would like to assign to other users.

System Security 2001 is a handy utility, which helps you set access and permission criteria for users on your PC. It also helps you lock up your desktop at startup and when you are not around. System policies can be set in System Security 2001, which help you allocate access rights for each user. This means separate passwords and accounts for users, varying levels of protection, etc.

## Encryption and decryption

So now that you have your passwords, user accounts, and all those Windows Locks in place, you probably think that your confidential data is finally safe, right? Well, think again! The truth is that anyone can take your hard disk out, plug it into another PC and access your information.

The way out of this dilemma is to encrypt your sensitive data. Encryption basically converts your data into a secret code. To convert it back into the original

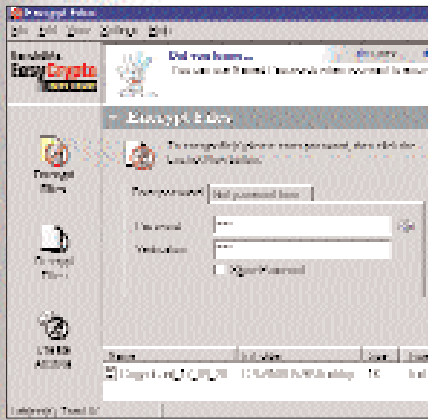
PHOTOGRAPH: Jiten Gandhi, IMAGING: Neeta Wadiker



### Keep out Prying Eyes

Set up a BIOS password to stop unwanted guests from getting past the bootup screen. You can set the boot password through your PC's BIOS. Press [Delete], [F1] or [Esc] to enter your BIOS during startup.





Protect your sensitive data with EasyCrypto

data (known as decryption), you need to provide a secret key or password. This ensures that no one besides you will have access to the data.

You can encrypt your data using free encryption software such as HandyBits EasyCrypto Deluxe.

EasyCrypto allows you to encrypt files and folders with password protection. To encrypt files, click on the 'Add Files' button in the 'Encrypt Files' dialog box. Now, browse to select the files you need to encrypt and click on 'Open'. Enter the password that will decrypt the files. To complete the encryption, click on the 'Encrypt Now' button. To decrypt the files, click on the 'Decrypt Files' icon. Add the files using

### General Safeguards

- Disable 'File/Print Sharing'. This feature has a lot of vulnerabilities.
- If you need to share folders, share them as hidden folders. For this add a '\$' sign after the folder name. For example, if you need to share a folder named music, share it as music\$. Also make it a habit to assign passwords.
- Rename your Administrator account in Windows 2000/NT/XP. This will make it harder for people to get access to your machine.
- Use a combination of alphabets and numbers in your password so that it's hard to guess and crack. Take any word, for example 'Digit' and frame your password by mapping the letters above each letter of the keyword 'Digit' on the keyboard. This is a good method to frame a password and it's extremely difficult

## Exorcise the Ghost

You might have often used the [Shift] + [Del] combination to delete a file and bypass the Recycle Bin. And you rest content assuming that you've seen the last of that file. Wish it were that simple! The reality however is not quite so at all.

With the right tools, someone with the know-how could easily get hold of that data under a minute. When you delete a file, Windows only removes the name of the file from the File Allocation Table. The data remains on your hard disk

till other data is written over it. This is where File Shredders help. File Shredders completely remove the data from your hard disk by thoroughly overwriting it several times.

Eraser is one such file shredder, which helps you delete information completely from the hard disk. By default, it overwrites the file 36 times. It also lets you schedule erasing of data on a periodic basis. Cleaning up unused space in drives is also possible with Eraser.

'Add Files'. Enter the password and click on the 'Decrypt Now' button. The files will be restored to their original state.

If you want to encrypt an entire folder, use the [F3] key to browse to the folder. Add the folder and encrypt it as you would encrypt a file. You can also encrypt or decrypt files and folders from Windows Explorer by right-clicking on the file or folder and selecting the 'Encrypt' or 'Decrypt' options.

You can even mail encrypted files as self-extracting archives. For this, select the 'Send To Mail Recipient' box in 'Create Archive'. Add the file and click on 'Build Now'. The file will be converted to a self-extracting archive file and added as an attachment to a new mail from your mail client. You can also select the encryption key length as 40, 64, or 128 bits by clicking on the 'Options' button.

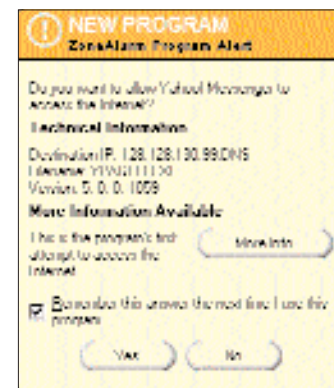
### A charm for the network

The measures that we've discussed so far were all about how you can protect your data physically, i.e. how you can protect your computer from being accessed by intruders around you. Now let's take a look at protecting your PC from prying eyes when you are connected to the Internet. If you thought that just running an anti-virus would protect you, then you are in for a rude shock.

It is very easy for someone to get access to your PC on the Internet, especially if you have an 'always on' connection such as Cable Internet or DSL. These connections usually provide you with a static IP, an Internet address for your PC which is constant whenever you are connected to the Internet. Dial-up connections usually have a dynamic IP, which changes every time you log on to the Internet. Static IPs allow hackers easier access to a PC.

A personal firewall will help you secure

yourself from unwanted visitors. Your PC's doors, or its ports, are completely invisible to outsiders when you have a firewall running. A personal firewall also helps you safeguard yourself from spyware and Trojans. Spyware are programs that send information about you to software developers without your knowledge. Many freeware



You can prevent certain applications from accessing the Internet

and shareware programs are spyware. Trojans are basically programs you unknowingly install on your PC, which give hackers control of your PC.

### Circle of fire

One of the best personal firewalls available is Zone Alarm from Zone Labs. It is free and installing it is pretty straightforward.

Zone Alarm is quite easy to use once you get the basics right. The first time you access the Net via a particular program (Web browser, chat client, etc) after

System Security 2001 (System Tools CD), HandyBits Easy Crypto Deluxe (System Tools CD), Eraser (System Tools CD), Zone Alarm (Internet Solutions CD)



## Conjure up an Update

Most of us tend to believe in not messing with whatever's working fine. Perfectly all right, but in the case of software that's not a very good approach to take. It is very important that you update all the software installed on your PC.

Some of the programs you need to keep updated at all times are Windows, Internet Explorer, Outlook and Outlook Express. These have a reputation for carrying a large number of security vulnerabilities. These programs can be updated from

the 'Windows Update' option in **Start > Settings**. This will take you to the Microsoft Windows Update page where you will be able to download the latest updates and install them.

Your anti-virus program is another important item you shouldn't ignore. Most anti-virus programs have automatic live update schedulers, which allow for automatic updation. Enable this feature and let the anti-virus do the updating for you.

installing Zone Alarm, a small message box appears near your system tray asking if you want the program to access the Internet. For example, when you launch Internet

Explorer, Zone Alarm will ask if you want Internet Explorer to access the Net. Click on 'Yes'. If you want the specific program to always access the Net, select the check box 'Remember this answer the next time I use this program' above the 'Yes' button.

Zone Alarm will also prompt you to set the program accessing the Net to act as a server. Be sure that this program is from a trusted source before allowing it to act as a server, because once you enable this option, it will allow others to gain access to your PC.

Click on the 'Security' button in Zone Alarm. Setting both local and Internet security levels to High ensures that your PC is invisible to outsiders. You can allow access to or block whichever programs you want to by clicking on the 'Programs' button.

Zone Alarm alerts you of potential hacking attempts and automatically blocks them. And the number of alerts you get, especially if you are using a cable or DSL connection, is unbelievable! This is because hackers usually run programs that send data packets to find vulnerable PCs, to which they can gain access. You can configure Zone Alarm to display a message every time you get an alert, or log them in a text file, or both. These alerts will give you details such as the IP address of the computer trying to access your PC, time of attempt, etc. An option you could use in Zone Alarm is to engage 'Automatic Internet Lock' when the PC is inactive for a certain period or when the screensaver is running. Click on the 'Lock' button in Zone Alarm to enable this feature.

So there you go! Follow these simple steps, and though they may not turn your PC into Alcatraz, you definitely will have some respite from nosy siblings, intrusive colleagues or malicious individuals on the Net. ■

ANIL PATRICK R.



Remember to set local and Internet security levels in Zone Alarm to High

## Prevention is Better than Cure

- Avoid running e-mail attachments.
- Use a separate ID when you post messages to newsgroups and other public forums.
- Do not make it a habit to sign Web site guest books, since this is an open invitation to spam.
- Most Web sites use small files called cookies, which are stored on your PC. These cookies send information about you to the sites. Use cookie removal programs to get rid of these.
- Use programs that clear the browser's history (sites you've visited) after every session.

www.thinkdigit.com



# Switch to Autopilot

Create macros to automate repetitive tasks and you can sit back and let your computer do the grunt work for you!

IMAGING: Ram

Computing has made several everyday tasks simpler for many of us. From accounting software to manage finance, to word processors that take much of the tedium out of writing letters, computers have been quite successful at reducing the monotony of performing repetitive and often boring tasks. However, there still remain many tasks that we end up performing over and over again on a PC. For instance, every bootup is followed by the predictable ritual of launching the Internet connection, starting up your favourite site in a browser and then running Outlook Express to check for new mail.

Even Windows, which most of us would consider a sophisticated and user-friendly operating system, doesn't offer tools that could provide some much needed relief in this area. True, there is the Windows Task Scheduler, but it isn't very powerful and doesn't let you perform more complex tasks such as launching multiple programs, or copying specific files at predefined times. The only way to do this in the past has been through the use of programs that require you to get a hang of fairly complex scripting languages.

Today, however, there are several applications that let you automate some pretty complex Windows tasks. One of the better ones around is Macro Angel v1.5.2, which has a simple wizard-based interface that lets you get the job done without having to first get a degree in programming.

## Understanding the task

What an automation tool does is to create a task. A task involves steps (or actions) that are executed in a sequence which is specified in advance. These actions could be anything from launching a specific utility, to switching between windows, sending keystrokes to an application or even performing a complex series of mouse movements and clicks.

Tasks can be set to run either at a specific time or on the occurrence of a specific event, which is called a trigger. A triggering event could be the pressing of a particular key combination or even the appearance of a dialog box, application or window.

## Working with the Task Wizard

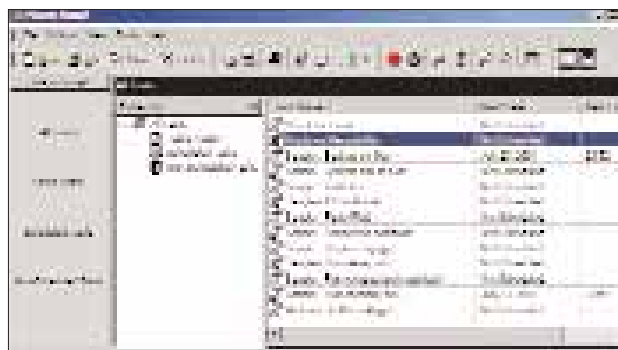
Creating a task is very simple in Macro Angel, which provides us with a wizard that does this in five relatively simple steps. Clicking on the *File > New Task* menu in the main screen of the Macro

Angel interface launches the first screen of the 'Task Wizard'.

**STEP 1** Task name: At this stage you need to specify a unique name for your task. You can also enter detailed information describing the task in this window. Other options include an 'Enable Task' checkbox that can be used to disable a task at any time.

**STEP 2** Recurrence: If you have a timetable in mind then here is where you need to enter specifics about the time intervals at which the task needs to be executed. You are also given the option of setting a task to run only on specific days of the week.

**STEP 3** Date and time: This step is optional and necessary only if you choose to schedule the task in the previous screen. You need to key in the date and time when the task will first be launched. This lets the software keep track of whether everything's progressing as per schedule. It also lets it calculate the frequency of tasks that have been configured to run repeatedly. In case the execution of a task is delayed for some reason—perhaps the computer was turned off at the prescribed time—



The Macro Angel interface is well designed and very easy to use



you can tell the software to either prompt you for instructions or just continue or cancel execution of the task.

**STEP 4** Define triggers: Triggers are necessary in Macro Angel to set off an event that has not been scheduled to run at a particular time. There are several types of triggers for you to choose from according to the task you want to set off. **Hotkeys:** Setting up hotkeys makes sense when you want to launch a task manually. An example of a good situation to use this feature is while launching an application or a Web site.

**Magic keys:** Using this trigger, Macro Angel can launch a task when it detects that a certain string of text has been typed into any application on your system.

**Appearance of a window:** This allows you to execute your task on the appearance of a specific application window. You can specify this window from the list that appears when the checkbox activating this kind of trigger is selected.

Although one trigger is sufficient, in most cases you can assign multiple triggers to a single task if you want to launch it in a range of circumstances.

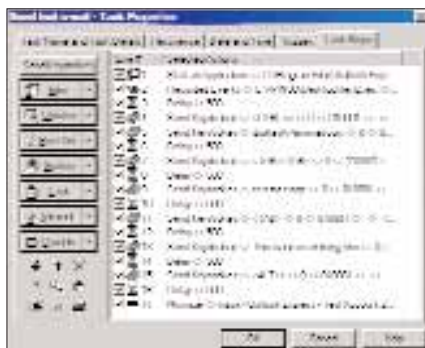
**STEP 5** Task Steps: This is the most important stage because 'Task Steps' are the key to helping Macro Angel provide the functionality to simulate your actions on your PC. Each 'step' involves the use of one of many types of actions that are possible on a PC. Once a Macro Angel task is triggered, the program moves through the steps defined during the task creation.

This is the part that requires the most planning. Not only is it necessary to choose the right task steps, but you need to ensure that these are arranged in the correct sequence so that everything goes off as planned.

### Let the action begin

One of the most critical steps towards achieving a properly functioning macro is to understand the actions recognised by the software and using them appropriately. While Macro Angel and other similar software support a large number of actions, you are likely to use some of them more than the others. It is essential to get a general understanding of these action types and what they do before you actually begin creating a macro.

**Sending keystrokes:** This is the first button in the 'Task Steps' pane and clicking



A sequence of action items are executed to perform a task

on it will take you to the 'Send Keystrokes' menu. It lets you enter text that you need to send to a particular application. The application window can also be specified so that the text isn't sent to the wrong location. For this to work properly, the application window needs to be 'in focus' or activated.

**Miscellaneous actions:** This collection of actions lets you perform tasks such as starting an application and opening a document or Web page. The 'Show a Message' action displays a Windows-style dialog box with the text you specify, which is meant for providing feedback during a task's execution cycle.

The most versatile and useful tool however is the 'Record Events' option. This allows you to record the movements of your mouse as well as keystrokes to a file, which can then be played back through a task to simulate the same mouse movements. For example, you can record your mouse movements as you double-click an icon to open a folder. Then just play these mouse movements back through Macro Angel, and you will see the pointer move about on the screen as if you were actually moving the mouse yourself. The program will continue to record events and



Record events and play them back to perform tasks

save them to a selected file until you press [Ctrl] + [Esc] on your keyboard.

**Handling windows:** Working with different application windows is necessary from time to time, especially when you decide to use the appearance of a window as a trigger for an event. This menu lets you focus on a particular window and then maximise, minimise, resize, close or even hide it.

**Flow control:** When designing a complex task made of different options, it becomes necessary for you to have some control over the progress of the task from one action step to another. Macro Angel provides us with several flow control tools that make this possible. A Windows-like dialog box can be made to appear, which pauses the task and prompts you to click either a 'Yes' or 'No' button. Depending on your choice the task either proceeds or can be terminated.

Macro Angel also allows the creation of loops that consist of one or more steps. These loops let you repeat a series of actions as many times as you like without your having to create them repeatedly.

However, one of the most powerful features of automation software is the ability to create conditional actions. They are usually used to check whether a previous action has been successfully completed. These conditional 'If/Else/End if' options help to completely automate tasks and completely eliminate the need for user intervention, which becomes necessary if even one step fails to complete correctly. **System procedures:** This set of actions gives you control of Windows system level operations such as file and folder management, and program termination. It even lets you reboot your computer when necessary. You can even automate actions such as Backup, which lets you create automatic backup processes that can even compress multiple files into a single ZIP file in order to save space. Other useful file handling actions include 'Copy', 'Move', 'Delete', 'Rename' and 'Findfiles'.

**Task management:** Often a task might consist of several subtasks that handle dif-



You can even control Windows' system level operations

ferent types of action. In order to control the operation of such nested tasks, you need to be able to 'Start', 'Stop', 'Pause' or 'Enable/Disable' a task. These tools are likely to be useful later, when you need to create really complex tasks.

**Internet functions:** These functions can be used to make or terminate a connection to the Internet and perform basic tasks such as checking your mail box or starting a file download or upload operation via HTTP or FTP.

### Create your first macro

To get an idea of how a macro is created, let's start by creating a macro that fires up Outlook Express and sends a test message to a specified address when you press the [Ctrl] + [Shift] + [B] key combination.

Use the 'New Task' button ([Ctrl] + [N]) to start the 'Task Wizard' and enter a name for the macro in the 'Task Name' field. You can then skip to step 4 to define the trigger that we decided on earlier—[Ctrl] + [Shift] + [B]. Before we start with step 5 ('Task Steps'), you should define all the actions that need to take place in order to complete this task. For this you should first go through the entire process manually and make a list of each step involved.

For our task, the process list would look something like this:

- u Start Outlook Express
- u Select the appropriate account from the 'Identity Login' screen
- u Key in the password for the account
- u Create a 'New Message'
- u Enter the e-mail address as required
- u State the subject for the e-mail
- u Enter the body text for the message
- u Send the message
- u Minimise the Outlook Express window

### Some other Automation Tools



Although we decided to work with Macro Angel v1.5.2, there are several other automation utilities that can get the job done. They are all available in the Macro Mania section on the System Tools CD this month. But you might want to visit their home pages for version updates.

AceMacro v2.0 - [www.hiteksoftware.com](http://www.hiteksoftware.com)  
 MouseAssist 2.0 - [www.mindmaker.com](http://www.mindmaker.com)  
 AutoMate 4.5n - [www.unisyn.com](http://www.unisyn.com)  
 Macro Magic 4.1r - [www.iolo.com](http://www.iolo.com)  
 WinScheduler v4.61 - [www.pitrinec.com](http://www.pitrinec.com)

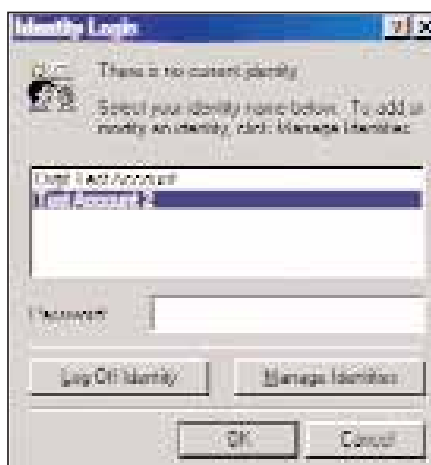
Once we have this listed, creating the Tasks Steps is quite simple. Our first macro can be broken up into four main stages as follows:

Stage 1: Start up e-mail client

To start Outlook Express, go to *Misc > Start an Application* and select the path to the Outlook Express executable from the box that pops up. In this case you would select *C:\Program Files\Outlook Express\msimn.exe*.

Stage 2: Log into e-mail account

Selecting the right e-mail account is done by going to *Misc > Record Events* and recording mouse movements that will click on the account that you want to log into. The password can be entered using the 'Enter Keystroke' action.



Use the Event Recorder to select your e-mail identity and enter the password

Stage 3: Create and send the e-mail  
 This stage can be completed in most part with the 'Keystroke' action. Just use the [Ctrl] + [N] command in Outlook Express to create a 'New Message'. The e-mail address, subject line and body text can also be entered using this action. Finally, you can send the e-mail using the [Alt] + [S] command in the 'New Message' window.

You might want to use 'Time Delays' between the actions just to make sure the text goes where you intend it to. You wouldn't want the address to end up in the subject line field and cause an error when you try to send the e-mail.

Stage 4: Minimise the e-mail client

This is really easy to do with the *Windows > Minimise a window* action, but you will need to specify the title of the Outlook Express window. You can either type this yourself or just select it (by double-clicking) from amongst the windows listed in the

### Free your Mind!

Here are five tasks that you shouldn't waste your time with. Just go ahead and automate them pronto!



Checking e-mail: Let your PC connect to the Internet, Send/Receive your e-mail and disconnect, all on its own.



File backups: Set up automatic backups of files and folders according to a pre-determined schedule.



System cleaning: Purge your system of temporary files and empty your Recycle Bin regularly.



Web site updates: Download and upload your Web site files automatically via an FTP client on schedule.



Standard e-mail responses: Create an e-mail template for every occasion. Make your own macros for standard greetings, e-mail taglines and more.



Select the window that you want to minimise

'Window List' on the right. Just remember, the window must already be open in the background for it to appear in this list.

We are done with making our first macro and have familiarised ourselves with a number of different types of actions as well as some basic flow control techniques. The macro is now ready to run and can be executed at any time by pressing [Ctrl] + [Shift] + [B]. Just remember that Macro Angel should be running in your system tray.

A little practice with these commands and techniques and you'll be able to automate even the most complex tasks. Remember that you should try and construct a macro that gets the job done in as few steps as possible. Having done that you can relax, put your legs up and leave things to your PC and the autopilot. ■

KARAN MANRAL





# Can't stop the Music

Napster may be history, but peer-to-peer file sharing is far from dead. A new generation of file sharing applications are keeping the flame alive, despite RIAA's attempts to stop the digital music blitzkrieg

**T**he golden era for Napster buffs is over. The music stealing software of choice now uses a finger printing technology that prevents the trading of copyrighted material. The 50-million-strong service has been re-formed to a membership-based service—users will now pay for downloads. A dozen other services have gone under too, as legal battles mounted by the record industry take their toll.

But RIAA's (Recording Industry Association of America) attempts at filtering music are about as effective as trying to soothe a rioting mob with a copy protected Kenny G CD. Ironically, for every target the RIAA has fought, there seem to be three more that spring out of the shadows. The services that gave momentum to peer-to-peer (P2P) file sharing may be extinct, but P2P is thriving and is one of the hottest technology buzzwords today. The number of file-swapping sites has grown more than five-fold in the past year, despite legal efforts by music companies and software firms to shut them down. Nearly one in three of the most popular applications at *Download.com* are for P2P services.

## Power to the people

One of the most popular second-generation P2P applications is Morpheus, distributed by StreamCast Networks. Since

its inception, 60 million have already downloaded Morpheus and a large number of them are heavy users. In the two weeks after StreamCast upgraded its version of Morpheus onto the open source Gnutella technology, 25 million users downloaded the new version. This proved to be of help to the Gnutella network as well—the number of people sharing files on the Gnutella network jumped from 100,000 to 500,000. Limewire, Morpheus, Bearshare, and many other P2P applications now share the same backbone, Gnutella. Users can share, search, and download not only all types of music, but also movies, pictures, games and text documents.

Justin Frankel and Tom Pepper at Nullsoft developed the original open source Gnutella client—the same company that created Winamp, the world's most popular MP3 playback software and Shoutcast, the number one Internet radio application. Many different companies, individuals and groups have gone on to modify and evolve the Gnutella protocol.

Gnutella is the record industry's worst nightmare, built to survive both court rulings and nuclear war. While P2P services based on centralised servers may be vulnerable to lawyers and court rulings, decentralised servers such as those based on the Gnutella technology can-



not be attacked at a single point. Shutting such systems down, even by court order, would be difficult because they are decentralised and do not belong to any particular company. Unlike Audiogalaxy, iMesh or any of the other similar systems, no central point links people together and serves as an index to all of their files and searches.

Despite all its pluses, Gnutella's performance during a session is quite flaky. If a client happens to find reliable hosts early, it will obtain a steady flow of data. At other times, a client may struggle to find even a single permanent connection. Other alternatives to decentralised server technology include Aimster, which piggybacks on Instant Messaging clients, and Espra, built upon Freenet, a decentralised and anonymous publishing/distribution system.

I will survive

So in the post-Napster era, how do the surviving P2P file sharing programs fare? Here's a round-up of some of the most




## Digital Music in India

The Indian music industry works under a different reality, wherein Internet infrastructure and PC penetration aren't widespread enough to cause any noticeable dent in music revenues. Indian music may not be as popular as Eminem's latest single, but a large amount of Indian music is easily available online. Our test run with file sharing applications revealed a large bank of Indian classical music, Bollywood hits and regional folksongs on Audiogalaxy and P2P applications using Gnutella.

Alternatively, you can buy your MP3s online from [www.soundbuzz.com](http://www.soundbuzz.com), which has tied up with major Indian record labels, independent labels and unsigned artistes to distribute their content online. Credit cards are the default mode of payment as of now, but Soundbuzz is looking at alternate payment methods including ISP and telecom billing.


popular services and a review of what you can expect.



**Aimster**  
[www.aimster.com](http://www.aimster.com)

A decentralised 'plugin' for AOL Instant Messenger, it allows users to view and swap files with those on their

buddy list. The latest version of Aimster allows the user to plug into other file transfer services, including Napster, OpenNap and Gnutella, among others.



**Audiogalaxy**  
[www.audiogalaxy.com](http://www.audiogalaxy.com)

This is a browser-based

Music Keyword Search

How good are these surviving services at getting the MP3s you want? We made a test run with four singles belonging to different categories to gauge their effectiveness.

- Popular:** Shakira's Whenever Wherever
- Indian Regional:** Suprabhatam as sung by M.S. Subbalakshmi
- Rare:** John Lennon's Make Love, Not War
- Non-Commercial:** Mc Hawking's Entropy

- This is a popular song that's getting a lot of airplay, but is also copyrighted. This would check if the service blocks copyrighted MP3s.*
- A Tamil bhajan; does the service cover world regional music?*
- A rare number from The Lost Lennon Tapes. Widely bootlegged since first being aired on a radio show.*
- An MP3 only release that hit the top position on the charts at mp3.com.*

	BearShare	Audiogalaxy	Espra	Morpheus	iMesh	Edonkey
Popular	✓ (67 Results)	✓	✗	✓ (1304 Results)	Not Functioning*	✓ (24 Results)
Indian Regional	✗	✓	✗	✗		✗
Rare	✗	✓	✗	✗		✗
Non-commercial	✓	✓	✗	✓ (10 Results)		✗
Speed	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>		<div><div></div><div></div><div></div><div></div><div></div></div>
Accuracy of results	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>		<div><div></div><div></div><div></div><div></div><div></div></div>
User base	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>		<div><div></div><div></div><div></div><div></div><div></div></div>
OS Support	Windows	Windows, Linux	Windows, Mac, Linux	Windows	Windows	Windows, Mac, Linux

\* The latest version of iMesh kept crashing after the registration process

Conclusion: Although BearShare and Morpheus use the same Gnutella backbone, Shakira's 'Whenever Wherever' gave a different number of search results. This is because each session with Gnutella is variable, and depends on the peer you are connected to.

Espra, based on Freenet is still in the beta stage and many features haven't been implemented yet. Freenet definitely has a long way to go before it becomes popular. It's unfair to judge Edonkey with MP3 file sharing applications—it's primarily used to swap movies and games.

Audiogalaxy still remains the best MP3 downloading application, despite its attempts to filter MP3s. A word of caution: results are not always accurate. You might find a lot of MP3s that don't belong to the original recording artist at all.

## Musically Yours

Five major recording companies have introduced file sharing services of their own—Pressplay courtesy Sony and Vivendi Universal, and MusicNet from AOL Time Warner, EMI, Bertelsmann's BMG, and RealNetworks. Both services allow users limited access to portions of their catalogues for \$10 a month. MusicNet is available through AOL, RealNetworks and Napster, while Pressplay is linked on MSN Music, MP3.com, and Yahoo Music.

Both MusicNet and Pressplay will be streaming

and download services. Unlike free services, both music services suffer from huge gaps in their selection of music, and their collection is less than comprehensive.

Both the services are mutually exclusive, and music under independent labels isn't available. The music collection on both services looks like a mail order catalogue.

Another problem is that music downloaded from Pressplay or MusicNet won't play on anything except the PC that downloaded it. Burning the files onto a CD or transferring them onto an MP3 player is also not possible.

year preceding it. The International Federation of the Phonographic Industry (IFPI) announced that global sales of recorded music fell by 5 per cent in 2001. While the general economic situation could be one reason for the decline, the IFPI insisted that illegal copying of music across the Internet was also to blame.

In a contrasting report made by Jupiter Media Metrix, Internet users who download songs from P2P services are more likely to increase their music purchases than regular Internet users. According to the report, 34 per cent of P2P users said they spent more money on music than they did before they used such services, while 15 per cent said they spent less. One-half said the amount of money they spent remained the same.

The report showed that music fans who did not use file-sharing services were less likely to report increased spending. Nineteen per cent said they spent more money on music, while 10 per cent said they spent less and 71 per cent said they spent the same amount. In fact, the biggest impact of digital music may turn out to be the fact that it

will drive more people to their local music stores with well-researched shopping lists.

Music companies however are preoccupied with making frantic attempts to ensure that consumers continue to pay for music even as technology makes it

increasingly easy to copy

and transfer digital music. These attempts range from music with expiry dates that would work for a certain amount of time to digital 'watermarks', which prevent copies from being made.

In a recent report carried out by an Internet data measurement firm, ComScore Networks, for the month of February, Morpheus attracted 37 million visitors worldwide, KaZaA garnered 25 million, and Audiogalaxy 20 million, while Pressplay brought in only 788,000 and MusicNet got a piddling 154,000. As is evident, the legitimate services have a long way to go. ■

SRIRAM SHARMA

program where you use its Web site to select which songs to download, while the client facilitates the transfer. The client program is small and simple, designed to use a minimum of CPU and memory resources. The Satellite automatically selects the closest user carrying the file you want, reducing external bandwidth usage. Popular and easy to use, Audiogalaxy allows you to resume downloads. Most copyrighted music is blocked, although you can dig deeper and find your song if you're persistent.



### Direct Connect

[www.neo-modus.com](http://www.neo-modus.com)

Unlike other file-sharing networks, Direct Connect offers a community-oriented approach to a user-controlled network. While Direct Connect's network architecture is built on a peer-to-peer foundation, the users run, control and maintain the network. Users are able to share any kind of file—absolutely no restrictions. This service is useful for those with a lot of spare bandwidth at their disposal.



### Edonkey

[www.Edonkey2000.com](http://www.Edonkey2000.com)

More of a movie and a game swapping ring than an MP3 service, Edonkey's popularity comes from the vast number of servers run by anonymous individuals. At a given time, Edonkey has at least a hundred servers running all over the world. Edonkey uses file hashing, which breaks a large file into smaller shareable chunks, and allows

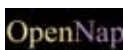
simultaneous uploading and downloading of files. It allows auto resume of files from any source.



### iMesh

[www.iMesh.com](http://www.iMesh.com)

Israel-based iMesh routes requests through a central server and allows access to video and image files apart from MP3s. Downloads are very fast and can be resumed later if a file's owner disconnects. iMesh allows you to download files from up to seven users simultaneously. You can complete downloads even if the original owner goes offline during file transfer. It's not as popular as Audiogalaxy or Gnutella-based applications, but it is one of the oldest surviving P2P services.



### OpenNap

<http://opennet.sourceforge.net>

OpenNap is an open source version of Napster that looks and works basically like Napster, but allows various individual sites to create their own interlocking Napster networks. It's been written by programmers who reverse-engineered the Napster protocol.

### Money for nothing

The year 2001 was the first year when sales of CDs were lower than the

By the end of 2002,  
there will be only about  
8 million MP3  
capable  
devices in  
consumers' hands



# 30 Minutes Expert Flash Forward!

The BIOS is a tiny chip on your motherboard, which provides the basic instructions for operating your hardware. Updating your BIOS can eliminate nagging problems due to bugs and add features that give your motherboard a new lease of life.

The process of flashing involves rewriting the EEPROM of your BIOS chip with newer instructions and patches. This will take a maximum of 1 minute or even less. The process explained here is applicable to the more popular Award BIOS. Before you begin, make sure you have a Windows 9x bootable floppy disk handy.

**STEP 1** Identify your motherboard and the current BIOS version. Press the [Pause] key while your system boots up and note down the signature of your BIOS. The name of the BIOS



Check for the BIOS ID and the name of the manufacturer on the Bootup screen

manufacturer shows up at the top left corner of the screen while your system does a memory check. The BIOS ID string is the long string displayed at the bottom left corner of the screen. In the third part of the string, the sixth and seventh characters denote the motherboard manufacturer. For example, in the ID 'i815-w83627-6a69rd4dc-00', 'd4' in the third part of the string denotes the

motherboard manufacturer, in this case, DFI (Diamond Flower).

If your motherboard uses an Award BIOS, you can check for the manufacturer at [www.abios.com/award.html](http://www.abios.com/award.html). If it uses an AMI (American Megatrends) BIOS, check [www.abios.com/ami.html](http://www.abios.com/ami.html).

**STEP 2** Depending on the type of your BIOS (Award, Phoenix, AMI, etc), download the latest flash utility and the necessary update file from your motherboard manufacturer's Web site to a floppy disk. Unzip the files. There should be three files in all: a .exe file, a .bin file (the BIOS update) and a .txt file. Copy the .exe and .bin files to the bootable floppy disk.

**STEP 3** Boot your PC in the DOS mode using your bootable floppy. See to it that no memory management programs or emulators such as emm386.exe are running, as this might interrupt the update process.

**STEP 4** To run the flash utility type the executable filename with the parameter as follows:

A:\> [executable file] [bin file]

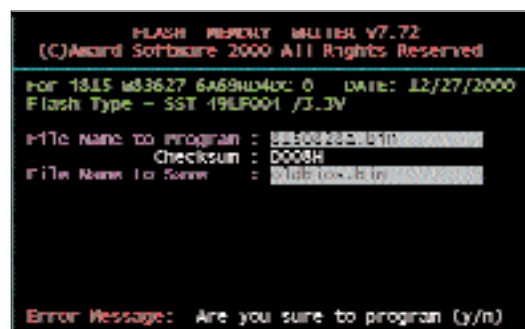
You can type [executable file] / ? to seek help on using the file.

**STEP 5** Most flash updating utilities have an option to backup your old BIOS settings. Make sure that you backup the current BIOS to a file by using the same utility.

**STEP 6** Check the path of the .bin file and press [Enter] to proceed. You'll be asked for a confirmation. Press [Y] to continue. The software will automatically update your BIOS. During this update period there should be no power surges or



Flashing your BIOS can be fatal for your motherboard, if there is a power failure or surge during the flashing process. If your system is working fine and you don't find any problems with your motherboard, DO NOT upgrade your BIOS. If you do decide to upgrade your BIOS, make sure to get some assistance from an engineer or a person who is well versed in computer hardware.



The flash utility screen showing the BIOS update process

electrical disturbances, else your BIOS can get corrupted and you would have to replace it (if the BIOS is socketed) or buy a new motherboard (if it's hardwired).

**STEP 7** Now exit the flash updating utility, reboot the PC and enter the BIOS settings by pressing [Del] while your system boots. Load the BIOS defaults by pressing [F6] or [F7], as required. Now when you reboot your PC, your BIOS ID at the bottom left corner of the screen should show the new date (the date on which you flashed your BIOS).

You're done. Now your PC will run smooth and steady with the newer instructions written into your BIOS. Hardware compatibility issues and bugs, if any, will also get resolved when you flash the BIOS. ■

VIDYARAMANAN S.



## Opening Binder files in Office XP, tackling overclocking issues, clearing your CMOS and other problems that are crying out for solutions

### Backing up Windows Address Book

**Q.** I have a computer running Windows 98 and I use Outlook Express for e-mail. I recently purchased a laptop with Windows XP installed. Is there a file(s) that I can copy to the laptop so that I can update and make use of my address book from here? I have over 100 addresses and don't want to retype them into the laptop. Please help.

**Kelly**

*Via e-mail*

**A** To backup the Windows Address Book you will have to copy the .wab file to another folder. To locate this file go to *Start > Find > Files and Folders*. In the search field, type \*.wab, and click 'Find Now'. Before copying, make sure that Outlook Express is closed. Now create a new folder to store the .wab file, for instance, C:\Backup. Copy the username.wab file to the new folder that you created, where 'username' is the name or alias of the Outlook Express user whom the .wab file belongs to.

### Remove MSN Messenger in Windows XP

**Q.** In all previous versions of Windows, I could remove MSN Messenger. But in Windows XP when I go to Add/Remove programs there is no entry for MSN Messenger whatsoever. How can I remove this program from Windows XP?

**Rajat Banerjee**

*Via e-mail*

**A** To remove MSN Messenger from Windows XP, locate SYSOC.INF in the \Windows\INF folder, which is a hidden folder. Open it in Notepad and locate the line, msmsgs=msgrocm.dll,OcEntry, msmsgs.inf,hide,7. Remove the word 'hide' from the line and save the file. You will

now be able to see MSN Messenger in the Add/Remove Windows components list. You can then remove it for good.

### Office XP refuses to open Binder files

**Q.** Whenever I try to open a Microsoft Binder file, I receive an error message: "This file does not have a program associated with it for performing this action. Create an association in the Folder Options control panel." How do I open such files in Office XP?

**Sarfraz**

*Via e-mail*

**A** You get this error message because Microsoft Binder is not included in Microsoft Office XP. However, Office XP includes a program called Unbind. After installing it (you will require the Office XP installation CD to install this feature) you can use Unbind to extract sections from the Binder file that you

want to use. To unbind a Binder file, follow these steps: Double-click the Binder file, or right-click on it. On the shortcut menu, click 'Unbind'. In the 'Unbind' dialog box, select the folder that you want to save the unbound files in. Click 'OK'.

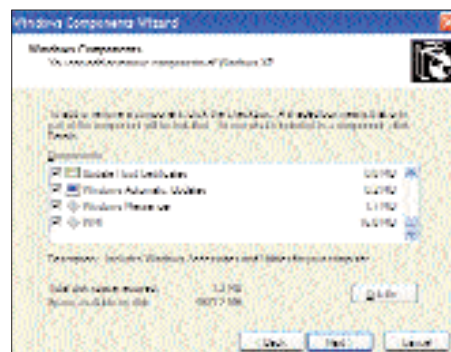
### Lost Windows Product Key

**Q.** I have lost my CD Key (Product Key) for Windows 98 SE. Is there any way I can get the serial number?

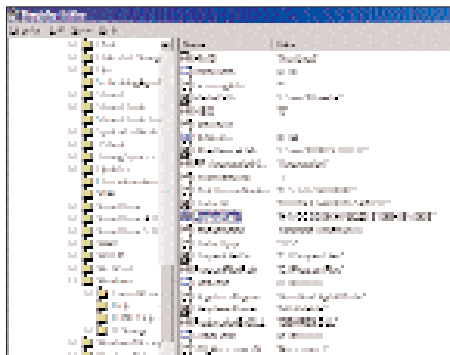
**Pukul Sharma**

*Via e-mail*

**A** When Windows is installed, the Setup program requires that you type in a 25-character Product Key that is printed at the back of the CD (jewel) case or on a certificate on the cover of the Getting Started/User Manual. During Windows installation, the Product Key is stored in the Windows Registry. You can find it on your computer by clicking *Start > Run* and typing *regedit*. Click the plus signs to expand the branches in the Registry until you reach: HKEY\_LOCAL\_MACHINE\Software\Microsoft\Windows\Current Version. Scroll down the right pane until you find



Removing MSN Messenger from Windows XP



Locate your Windows Product Key from the registry

the Product Key. Note down the number and store it in a safe place.

### Overclocking problem

**Q** I overclocked my Celeron 400 MHz processor to 500 MHz, but I soon reverted back to 400 MHz because after overclocking, my mouse hung after Windows had loaded and subsequently the system

crashed. Now my machine refuses to load Windows and all the files on the drive are corrupt. What is the problem?  
**Cyrus**  
Via e-mail

**A** You have overclocked your Celeron processor by increasing the Front Side

Bus (FSB) speed from the default 66 MHz to 83 MHz. Because of this, your PCI bus is running at 41 MHz, whereas the default PCI bus speed is 33 MHz. Because the PCI bus is overclocked, your hard disk drive cannot handle the extra bus speed. Hence, the files on your drive have become corrupt and you are unable to boot into

Windows. To avoid FAT/file corruption and to maintain your overclock, you can run your drive in PIO mode. To do this, access the BIOS by pressing [Del] when the Power-on Self Test screen comes up during bootup, and disable UDMA. This will ensure that the files on your hard drive don't get corrupted when you overclock and you will be able to boot into Windows. However, the speed with which your system accesses the hard drive will become a lot slower.

### What's the buzz?

**Q** I recently purchased Creative's SoundBlaster Audigy. From the very first day I've been hearing a buzzing sound from the speaker set. I contacted my dealer and he said that there was nothing wrong with the speakers and suggested that I had probably not installed them properly. I reinstalled everything from scratch but the result is the same. How do I solve this problem?

**Santosh**

Via e-mail

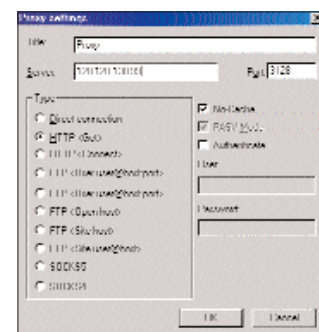
**A** First, ensure that there are no power lines running too close to the audio cables of your speakers—this sometimes causes a buzz which is the result of noise caused by the 50 Hz frequency of your power line. Move any such power cords away from the signal cables running to your speakers.

Many digital speaker systems do not support the 96 KHz sampling rate of the Audigy, resulting in static or buzzing from your speakers. So if you have a digital speaker system, change the sampling rate to either 48 KHz or 44.1 KHz. To change the sampling rate, click on 'Audio HQ' in the system tray. Then select the 'Device Controls' applet. On the 'Sampling Rate' tab, select the

required sampling rate from the 'Digital Output Sampling Rate' list. Most speakers support the 48 KHz output option. Your speakers should immediately stop buzzing and you should be able to enjoy normal output.

### Using FlashGet on proxy

**Q** I work in a company that has broadband Internet. Earlier all machines could directly access the Net. However, to keep a check on employees' activities while they are online, the system administrator installed a proxy through which we now access the Internet. As a result, we had to apply certain settings in Internet Explorer as provided by the system administrator. Prior to this, I used to use FlashGet to download files



Add your proxy details in FlashGet

from the Internet, however I am unable to do so now. Is there any way by which I can make FlashGet download programs?

**Sanjay**

Via e-mail

**A** Since your machine is no longer directly connected to the Internet, you will have to change the settings in FlashGet. By default, FlashGet is configured to access the Internet directly. To change this, go to **Tools > Options > Proxy** and click on the 'Add' button. Here you can define the title of your connection in the 'Title' box. You will have to add the

### Problematic USB mouse

**Q** I recently purchased a new USB mouse. It works well, but whenever I try to wake my computer from standby mode, my mouse stops responding. Since a USB to PS/2 connector was provided in the box, I tried plugging it in the PS/2 port. To my surprise this time the mouse worked just fine. So where exactly does the problem lie?

**Gautami Shroff**

Via e-mail



ILLUSTRATIONS: Mahesh Benkar

**A** There is nothing wrong with your mouse. You might have enabled STR (Suspend to RAM) from your BIOS. When you try to wake your computer from Sleep mode any USB device attached will consume more power. If your machine can provide that excess power to the USB device it will be able to wake up, else it won't respond. Check your motherboard manual and if it says that there is an extra jumper setting to draw more power (+5VSB with at least 1A throughput through the power supply) for USB devices, then change the jumper accordingly. If your motherboard does not support this feature then disable the STR feature from the BIOS (access the BIOS by pressing [Del] when the Power-on Self Test screen comes on during bootup) and your problem will be solved.



same settings that you added in the browser, as provided by your system administrator. Now FlashGet will be able to download files for you as usual.

#### Can't play *Medal of Honor*

**Q.** I have a P-III 500 MHz machine with an ASUS TNT M64 32 MB graphics card and a 20 GB hard disk. I recently purchased the game *Medal of Honour*. I installed it successfully, but when I tried to play the game it gave me an OpenGL error. I went back to the dealer and he said there was no problem with the CD he gave me. Please help.

**Anurag**

*Via e-mail*

**A** There is no defect in the CD and there's nothing wrong with your system either. Apparently, you are using an outdated set of drivers. As a result, when the game requires to use the OpenGL functionality of your graphics card, the drivers can't initialise that functionality and you get this error. Download the latest set of drivers (called the Detonator 4 v28.32) for your operating system from [www.nvidia.com](http://www.nvidia.com) and you will be able to play the game.

#### **Q.** Monitor refuses to display

I tried to change the resolution of my 17-inch monitor from 1024x768 to 1152x864 and the refresh rate to 85 Hz. It was working fine, but when I restarted my machine the next day, after the Windows 98 boot up screen it showed 'Out of Sync Range'. I tried to restart the machine and boot in safe mode. However, I am using a USB keyboard and it does not get initialised unless the machine starts loading Windows. I tried to use another monitor to rectify the problem but the situation remains the same. Please help me.

**Vivek**

*Via e-mail*

**A** There's nothing wrong with your monitor or graphics card. The monitor displays the 'Out of Sync' message because you have set a refresh rate that the monitor does not support at that particular resolution. To solve your problem, you will have to boot in safe mode and reset your display to a lower resolution and refresh rate settings.

However, apparently, you haven't enabled the USB keyboard support from your BIOS and as a result you are unable to boot into safe

mode. You should go to the BIOS (press [Del] when the Power-on Self Test screen comes on during boot up) and enable USB keyboard support in your BIOS menu. This will solve your problem.

Once in safe mode, you'll be able to uninstall the display card drivers, restart your machine and reinstall them. Your problem should now be solved.

#### CD-ROM problem

**Q.** I have a 48x CD-ROM. I've had it for the past two years and it's been working fine so far. But recently when I inserted a Video CD in it, it scanned the CD for some time but refused to play. I tried to eject the VCD from the CD drive but nothing happened. I shut down my machine and switched it on after some time and again tried to eject the VCD and still nothing happened. How can I eject the CD?

**Nimish Patel**

*Via e-mail*

**A** Apparently the CD is jammed in your CD drive. In order to remove it you will need an extremely thin and sharp object that can be inserted in the front panel of the CD drive (usually just below the CD



Open your jammed CD-ROM tray by inserting a pin in the front panel

tray). On inserting this, the CD tray will eject the CD-ROM.

#### Clearing CMOS

**Q.** I had specified a password to access my CMOS and have now forgotten it. I can no longer access my BIOS. Is there any way I can get the CMOS cleared?

**Natrajan**

*Via e-mail*

**A** Yes, you can reset the password by clearing the CMOS. Unscrew your cabinet. Locate the CMOS clear jumper on the motherboard; it's usually located near the battery. Keep the motherboard manual handy for reference. Most CMOS clear jumpers have three pins or two pins that you will need to short. If it has two pins, short the CMOS by touching a metal object to both the pins or by putting a jumper on both the pins.

If the CMOS has three pins, move the jumper from one set of pins to the other to discharge the battery. Make sure that the computer is switched off and the power cord is unplugged when you do this. If you can't identify the jumper, remove the battery and let the CMOS discharge for 10 or more minutes. Reinsert the battery. On going to the CMOS now, you will no longer be prompted for a password.

#### E-mail error

**Q.** When I try to retrieve my mail I get the following message: "A time-out occurred while communicating with the server. Account: pop.vsnl.com (1)', Server: 'pop.vsnl.com', Protocol: POP3, Port: 110, Secure (SSL): No, Error Number: 0x800CCC19." What can I do to fix it?

**John**

*Via e-mail*

**A** You can try increasing the server timeout to 1 to 2 minutes. You

can do so by going to **Tools > Accounts > Mail > Properties > Advanced**. If the message continues to appear, there might be a problem with your account settings.

Make sure that you've

entered the cor-

rect username

and password.

Or you may

have a very large

message to down-

load as a result of

which you are get-

ting this error. In this

case, use VSNL's Web mail

interface and delete the file manually.



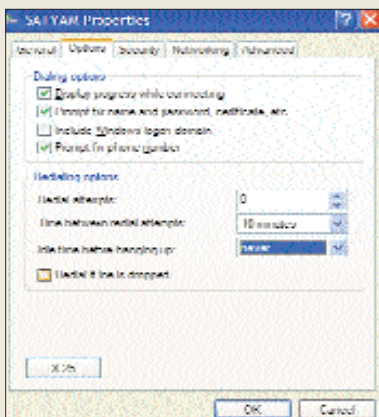
## FAQs

### I get disconnected

Q. Whenever I try to connect to the Internet the connection automatically breaks off. I recently upgraded to Windows XP, but the problem persists. Please help me.

**Navin M. Mehta**

Via e-mail



Prevent automatic disconnection from the Internet

A There could be various reasons for your Internet connection dropping automatically. Try the following and you shouldn't be facing the problem any longer:

In the Control Panel, go to 'Printers and Other Hardware'. Click on 'Phone and Modem Options'. On the 'Dialling Rules' tab, click 'Edit'. Here you will find an option for disabling call waiting. Enable it by typing 119.

If this does not solve your problem then before hanging up, click on *Properties > Options > Idle time*. Change this option to 'Never'. As a last resort, you could try the following: Select 'Modem Properties' in the Control Panel. Click on 'Advanced' and type in the extra setting key *ATS10=250*.

### CMOS error

Q. Of late I keep getting 'CMOS checksum error'.

Can you tell me what causes this error?

**Chandrashekhar**

Via e-mail

A A CMOS checksum is generated by adding all the bytes (or bits) in the CMOS one after the other.

That is, byte 1 is added to byte 2, byte 3 is added to the sum of bytes 1 and 2, and so on. The result (checksum) is stored in the CMOS.

During the boot-up process or POST (Power-On Self Test) a checksum is generated by the BIOS from the CMOS and compared with the one saved the last time the CMOS

Setup was run or the BIOS defaults were loaded.

If the two numbers don't agree it is an indication that the data in the CMOS has been corrupted (one or more bits in the CMOS changed when they weren't supposed to) and a checksum error is issued by the BIOS ('CMOS checksum invalid', 'CMOS battery low', etc).

The causes for this are:

1. A bad battery
2. A battery that has become discharged (the computer has been off for a very long time)
3. A disconnected battery
4. Insertion of an expansion board in a manner that shorts out the bus
5. A power surge
6. Lightning
7. Static electricity
8. A faulty motherboard
9. A faulty real-time clock

### A spotted scanner

Q. I recently bought a new scanner and it works perfectly well. One day when I viewed the glass closely, I noticed a green spot underneath the glass and there now seems to be a permanent green spot on the scanner glass. Should I take up this issue with the dealer and ask for a replacement?

**Jatin**

Via e-mail

A Yes, there does seem to be a problem with the scanner glass. It would be advisable to contact the nearest service centre and get it checked. The permanent spot indicates that there is probably a manufacturing defect on the glass. So even though your scanner works well, you should ask the authorised technician to check the device and change the glass if necessary.

### System freezes

Q. My computer hangs when I'm scrolling a Web page that hasn't loaded completely, and vertical green lines appear on the screen. What could be the cause for this?

**Shwetha Mani**

Via e-mail

A This problem usually occurs if there is a bad write to the frame buffer or RAM-DAC of the video card. To fix this problem, open Display Properties (right-click on an empty spot on the desktop and select 'Properties'). Click on the 'Settings' tab and reduce the resolution by one notch; click on 'Apply'. Now bring it back to the original setting. This will reset the important parts of your video card and you will not have to restart your machine.

If this does not solve your problem, then in Display Properties, Click on the 'Settings' tab and then click on 'Advanced'. In the window that opens, select 'Performance' and reduce the Hardware acceleration by one notch.

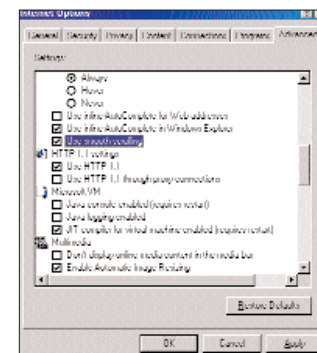
### Problems with a scroll mouse

Q. I have a scroll mouse and I use the scroll function while surfing the Net and viewing Web pages. My sister used my PC for a while and now when I surf the Net, I can't scroll down Web pages but the scroll function works fine in all Office applications. I removed the Logitech drivers and downloaded the latest ones, but the problem persists. Is my mouse damaged?

**Merzi**

Via e-mail

A Neither is your mouse damaged nor are the drivers corrupted. You are unable to scroll through Web pages in



Enable the scrolling option in IE

your browser because your sister may have accidentally disabled this option. To enable it, go to *Tools > Internet Options > Advanced* and enable the 'Smooth Scrolling' option. Now you will be able to scroll through Web pages in your browser.



Send your problems to [sos@jasubhai.com](mailto:sos@jasubhai.com) or write to Digit, D-222/2, Om Sagar, MIDC, Nerul-400 706



# tips & tricks

## Web site Vastushastra

Building a Web site is no mean task. You need to take care of its design, content and even decide on factors such as which hosting service you must use.

Here are some tips that will help you build the Web site of your dreams



ILLUSTRATIONS: Mahesh Benkar

### contents

- 41 The building blocks
- 43 Getting online
- 45 Enhance your site
- 47 Promote your site



The Number One  
Technology Destination

[www.zdnetindia.com](http://www.zdnetindia.com)



## THE BUILDING BLOCKS

Decide what the site is going to be about. The purpose decides the visitors and both these factors guide the design



### Design Tips

**Aesthetics take a back seat in Web site design. Navigation, layout and grouping of information are more important here**

#### Picture it

Here's where you actually start designing the site. Don't rush into making the pages or graphics yet. Use a paper and pencil, or even an imaging tool (MS Paint is good enough for this) and scribble your site layout first. Try and indicate with as much detail as possible, what fits in which part of the site. You should also check out some existing Web sites for ideas. It's a good practice to keep all navigation links together. If there are too

many of them, club them into logical groups.

Keep important items, such as navigational links in the top 400 pixels of the page. Visitors to the site see this area first, so that's where the most important information should appear. Also, ensure that the main body of the page starts within this area, so visitors can



A template designed in MS Paint

start reading the text right away.

#### The first cut

When you start designing your site, work on the whole page as a single image instead of starting with the different elements. Once this is ready, you can start cropping out each item. This will ensure that all items are of the appropriate size and making the final page will be easier.

#### The sacred scrolls

Keep vertical scrolling to a minimum and avoid any horizontal scrolling. Restrict vertical scroll to a maximum of two-and-a-half scrolls of an 800x600 screen. However, if you do have a lot of information that must be given on the same page, don't fill up the entire page



Keep the most important matter on the top half of the page

with text. One column in the centre, irrespective of the amount of scrolling involved, interspersed with attractive graphics works well. This is one reason why it's a good idea to dedicate a column on the left to navigation links—since it already takes up some space, you have to worry less about the information flow.

Avoid gimmicks such as tickers and scrolling text. It slows down the page, is usually quite irritating and distracts the visitor's eye from the rest of the page.

### Optimisation Tips

**It's easier to retain visitors to your site if the pages load fast. A fast-loading site holds attention, so they won't go clicking around other windows**

#### Table smart

In browsers, tables do not show up on a page until all content within the table has been downloaded, making a page seem slow. Avoid nested tables and long vertical tables. Instead, stack tables on top of each other—pages then appear to load faster as each table shows up faster. In this context, it's better to place your navigation links horizontally, towards the top, as it will show up before most of the rest of the page. Keep the most important links at the top and the rest on the left, or keep top-level sections on the top and subsections on the left.

To make a table stand out on a page, use a border around it rather than an



Use borders to highlight tables



image, which is fixed in size. Nest the table within a single-cell table with a cell padding of 1 pixel (or more for a thicker border) and a background of the colour you want for the border.

```
<table border=0 bgcolor=#000000
cellpadding=1 cellspacing=0>
<tr><td>
<table border=0 bgcolor=#FFFFFF
cellpadding=0 cellspacing=0>
<tr><td>Content here</td></tr>
</table></td></tr></table>
```

#### Re-use images

If an image is repeated through the site, use the same file across all pages so that it needs to be downloaded only once—the browser's cache takes care of this. If you use similar images, break them into static and changing parts so you can reuse the static part of the image.

#### Smaller images

The size of an image will be smaller if you use a 256-colour palette. GIFs are generally smaller than JPEGs, but JPEGs offer better quality when using lots of colours as on photographs. With smaller images, use distinct edges and crisp colours.

Almost all imaging tools optimise images by saving them with a palette of only those colours used in the image. Some applications let you choose how many colours to use in the image. It then replaces colours not fitting in that palette with the nearest match, thus reducing the image size.

Avoid too many animated graphics. A lot of them together are unpleasant to

the eye and also take longer to download as compared to simple images.

#### Stylise your site

Use a style sheet for your site to add consistency and reduce page size. You won't have to explicitly define many font and paragraph tags. Avoid using inline styles—this is as good as using HTML tags—except for special cases. Use a single CSS file that has all the style definitions. Once a person visits a page, the browser will use the file from the cache for the rest of the pages.

#### De-script-ion

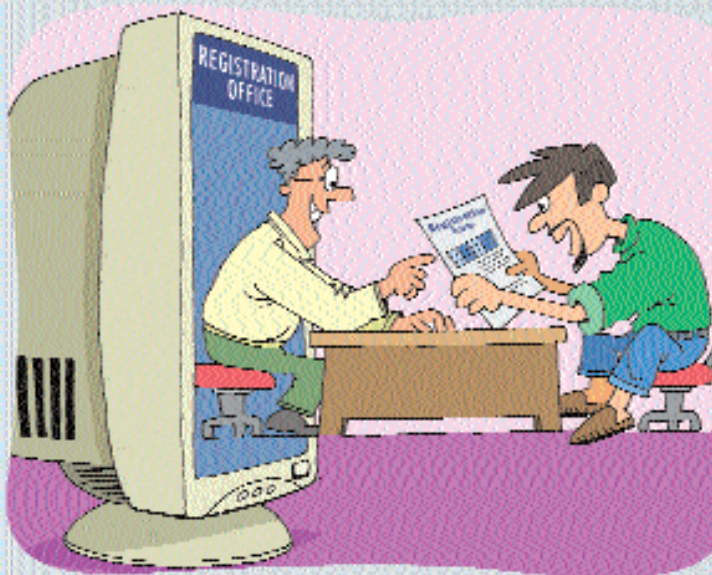
As with external style sheets, try and push all JavaScript (JS) into one or several external JS files. Re-used code such as that for rollovers, menus, validation, etc can easily be separate functions in a single file. Again, the file will have to be downloaded only once and will be used from the cache henceforth. So try to use scripts that are as generic as possible so that they work smoothly with all pages.

#### Less jazz, more speed

The lesser jazz on a page, the faster it loads. Animations and rollovers affect the size and number of files the browser has to download. Another aspect usually overlooked is DHTML items such as menus that show and hide themselves. Though hidden away, they add a lot of code to the page, increasing the size considerably. Use these wisely and limit the number of such hidden blocks to a minimum.

## GETTING ONLINE

Select wisely. Check out the features and deals offered by different services before you register with free hosting services



#### Free Hosting

**The Web offers free software utilities and other services that let you design, upgrade and maintain your site**

#### Storage space

Server space becomes a constraint as you start building up your site. You have to ask yourself the question "How much space will I actually need?" HTML pages take up very little space and if you follow the optimisation techniques discussed above you will save on a considerable amount of space while uploading images.

Choose a free hosting service that offers you upwards of 10 MB of space. For instance, [Freeserver.com](http://Freeserver.com) offers you 12 MB of free

space while [Yahoo](http://Yahoo) [Geocities](http://Geocities) offers you 15 MB.

#### File size limits

Hosting your pages on free servers across the Internet would gulp down the bandwidth of the free service provider. Hence, most of them restrict the size of the files that can be uploaded. For example [www.freeservers.com](http://www.freeservers.com) offers you a 256 KB file size limit, which is the maximum as far as we have seen. Choose a free hosting provider that would offer better file size limits. [Freeservers.com](http://Freeservers.com) also gives its free registrants a maximum bandwidth of 512 MB per month.

#### FTP access

For maintaining your site



Interactive Mobile Finder, Mobile Comparison, Reviews, Buyers Guide, SMS Special, Prices

Mobile

[www.zdnetindia.com/mobile](http://www.zdnetindia.com/mobile)



and uploading newer pages you might require FTP access to your Web space—this is faster than the GUI Web interface. Most free Web space providers don't offer FTP access. It's usually reserved for professional and other paid package schemes. *Yahoo Geocities* closed down its offer of free FTP access from April 2, 2002, as it went paid on some of its services. But there are exceptions too. You just have to do some hunting around.

#### Site search engine

You could make your Web site a repository of all your intelligence and knowledge. Now what if someone wants to search your knowledge store for something specific? Does your free service provider offer you the facility of searching your site? Check

on it before registering with a hosting service. *Freeservers.com* offers a site search engine as well as a search engine that can search across similar sites.

#### Site builder

If you are a novice on the Web you might prefer some kind of guidance. While registering for a free hosting service check if the service provider will assist you with site building templates and tools. Most service providers do that as a part of their effort to promote their services.

#### Site copier

This is a feature that's available with *www.freeservers.com*. Imagine you have your site hosted elsewhere on the Web. Copying those files one-by-one to your *freeservers.com* account would be a tedious process. Site copier helps you copy all your files from your earlier hosting space into your *freeservers.com* space in a jiffy. Once the files have been moved, the site becomes available in your new account and you can start working on them.

#### Forwarding e-mail

Certain sites provide you with free e-mail services while others don't. The ones that do, provide a mail-forwarding service. When you have registered a domain such as *tintinsclone.freeservers.com* and someone sends a mail to *anyname@tintinsclone.freeservers.com*, it will be auto-

matically forwarded to the e-mail address that you entered in your membership details. You need to activate the e-mail forwarding facility before you can actually use it. If you plan to distribute the mail you receive to other individuals, then enter an e-groups mail ID to which all of them have subscribed. Whatever mail you receive at your site will then be forwarded to all the subscribers.

#### Sundry features

Other features that you could possibly look for could be free site statistics, site counters, message boards, guest books and form e-mailers. Most free hosting sites provide these features. Choose the best from the options you have.

#### Monthly bandwidth

Data is sent back and forth when visitors enter and leave your site. Your monthly bandwidth is the total amount of data transferred from your hosting space to all the visitors' computers. Since bandwidth is a main cost factor involved in hosting, free services limit the bandwidth offered. *Yahoo Geocities* offers you a maximum bandwidth of 3 GB per month.

#### Cheap deals

**The facilities offered by free hosting service providers are restricted. It's advisable to opt for cheap paid services**

#### Cheap domains

Most Netizens would prefer



#### Host it yourself

If you are a Cable Internet/DSL subscriber and have a dedicated IP, you don't have to bother with free hosting or buying Web space. You can host all the content on your computer and direct all requests to your domain name to your computer's static IP. There is a downside to this—be prepared for huge electricity bills.

having their own online identity. Domain name registrars allow you to register your preferred name. Offers range from Rs 350 to over Rs 1,000 depending on the service.

The cheapest and probably most reliable of all services is *www.net4domains.com*. You can register your domain name for just Rs 445 a year. Of course, a 10-year deal for Rs 4,450 will be economical if you wish to maintain a site that you can hand over to your successor. What's more, you get two free e-mail IDs on any booking made with *Net4domains*.

Search for your domain name. If it's available, book it on the Web site and send a cheque or demand draft to *Net4domains* as instructed on the site or in the confirmation e-mail that you receive. Your domain will be registered only after your payment is received and will remain active for the registered period only.



#### Smart coding

■ Do not use any WYSIWYG editors such as MS FrontPage or Netscape Composer. They might change the script you are copying and it's possible that errors might occur on your Web page. Use a normal text editor such as Notepad to do HTML inclusions/exclusions.

■ If you know a bit of HTML you can use frames to load message boards and guest books within your main site. Check out *www.wdvl.com* for more information.



Virus Alerts, Bug Fixes, Patches, Security

Virus Workshop

www.zdnetindia.com/virus

## Hosting/Storage

Web space is an expensive commodity. With add-on services such as POP3 mail accounts, most of the service providers rip you off even for a meagre 2 MB of Web space. *Cybersitesindia.com* is probably one of the cheapest options available. The company charges Rs 850 for 5 MB of space on an NT server or a Win2k server. If you are booking hosting space upwards of 1 GB, then your per MB cost slumps to Rs 20. A list of hosting service providers is available in the links section. You can also check out hosting servers located abroad—they could turn out to be cheaper alternatives.

## Availability of domain name

Check whether your choice of domain name is available. Find domain name availabil-

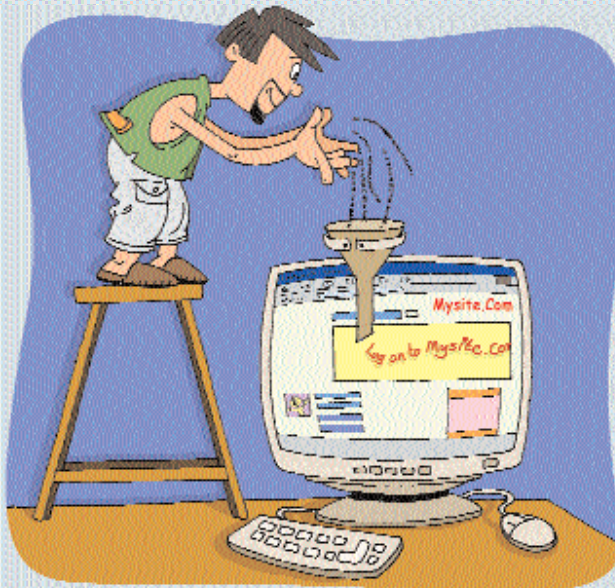


Check if the domain name you want is available

ity within different domains with any of the registrar sites. For example, enter your choice of domain name in *www.net4domains.com*, and click 'Search'. If it is taken, you get a 'whois' link. Click on the link to find who has registered the site name.

## ENHANCE YOUR SITE

Don't know the latest scripting languages? Relax. You can get great scripts and applications for your site for free!



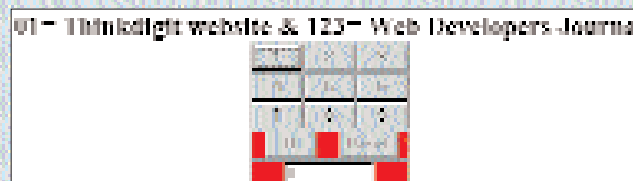
### Free Scripts

**You can make your Web site interactive without knowing any VBScript, JavaScript, etc. Simply follow instructions closely and do a perfect 'Copy, Paste'**

#### Dial pad to link you

A script available at <http://javascript.internet.com> allows you to link to Web sites through a dial pad interface. Choose the Web site from the text listing and note the cor-

responding number. Now dial the number in the dial pad on the Web site and you will automatically be redirected to the desired site. Embedding this script into your site is quite simple. Copy the script from the script section on the above-mentioned site and paste it into the head section of your Web page. Enter the required site names and URLs in the appropriate space as instructed. Save it and you are done.



Dial-a-site through javascript.internet.com

Your visitors can now use the dial pad to link to sites you have listed in your page.

#### Scrolling image script

You can get some neat software at *www.qiksearch.com*, a site where a novice programmer is publishing the fruits of his labour. Scrolling image is one of the latest in the collection of JavaScripts posted on this site. This script lets you scroll an image or multiple lines of text to the right or left. To use the script in your site, download it from the site and follow the instructions to embed the code into your HTML page.

#### Treasure house of scripts

You will want your site to be highly interactive so that users find it easier to navigate. You might want to add menu systems, mouse scroll effects, etc. What you would definitely want is dynamic content. You can download any number of these scripts for free from *Dynamicdrive.com*.

#### Menu and navigation systems

Windows users might prefer having a Windows interface on the Web too. You can satisfy this need by using the menu and navigation scripts available at *www.dynamicdrive.com*. You can test each script before trying it on your site. Select the one that you like and following the instructions, copy and paste the code into your Web page and presto! You have the

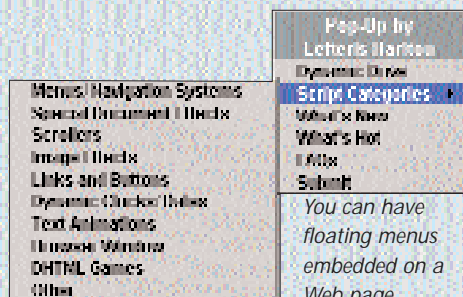


Job Search, Resume Builder, Salary Centre, Job Alerts

TechJobs

[www.zdnetindia.com/techjobs](http://www.zdnetindia.com/techjobs)





required menu and navigation effect on your site. You can choose from a range of scrolling, static, and drop-down menu and navigation items from this section.

### Document effects

Your HTML pages need not be static. You can add cool effects to it. For instance, you can have snowfall or flowers moving across the page randomly. Mind you, this looks good but can be irritating too. So add these effects to pages where you have lighter

content, for example, a photo gallery or a personal links section. You can download code from the sites mentioned in the 'Cool links' box and paste

it into your document in the same manner as you did before.

### Free applications

If you want to track the number of visitors to your site, you can add a page counter for this purpose. The other small applications that you could possibly add to your Web site are forums, guest books, log systems, polls, e-mail forms and so on. Your hosting service might provide most of these. Since all the information is stored on the application provider's server, you don't have to worry about hosting space for using any of these applications.

### Count the visitors

Make use of the counters if you want to track the number of users who visit your site. Some sophisticated counters allow you to track down statistics on user visits month-wise or even day-wise. Microsoft bCentral offers you a counter that tells you exactly how many people visited your site on a particular day in a month.

Visit [www.fastcounter.com](http://www.fastcounter.com) and you will be redirected to [www.bcentral.com](http://www.bcentral.com). Register and get your passport. A couple of

May 2002						
Mon	Tu	We	Th	Fr	Sa	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Get visitor statistics on a daily basis

clicks, and the site designs the counter and gives you the HTML code. You can copy and paste the code onto your page. All stats will be stored on the bCentral server and you can log on to your account anytime to view the statistics.

### Tracking the stats

You might be curious about which pages on your site are visited the most, what browser the visitor uses, or probably what OS most visitors use. Visit [www.extremedm.com](http://www.extremedm.com) and register yourself for free tracking code. You will be sent a mail with the code details. Follow the instructions provided and paste the code onto your site. As users visit your Web page, tracking starts automatically and your account is updated with details of the user and his PC. You can login to your account at the site at any time to view your site statistics, which are quite exhaustive. You can also restart your tracking at any point in time, but this is at the cost of losing your earlier data.

### Soapbox

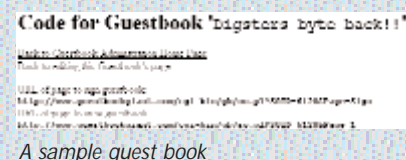
You can include message boards for free on your site. Visit [www.boards2go.com](http://www.boards2go.com) and

register yourself for a neat message board service. You can provide a link to the message board from your site or copy the code provided by [boards2go.com](http://boards2go.com) while you register.

### RSVP

You have worked hard to put together your online monument. Wouldn't you like to hear from the visitors whether they liked your site? A guest book is your solution. Some free subdomain name registrars such as [Freeservers](http://Freeservers) and [Yahoo Geocities](http://Yahoo Geocities) provide a free guest book within the site manager.

Visit [www.guestbookgiant.com](http://www.guestbookgiant.com) and signup for a free service. Create as many guest books as



you want and customise them from the respective menus. After customising the guest book, click on the 'Get code' link. This provides you two links—one to enter the guest book and the other to view it. Paste these links on to your Web site. There! Now visitors to your site can use the guest book to send their feedback to you.

### DHTML games

Want to spice up your Web page? Then host some Shockwave, Flash and DHTML games. Some DHTML games are available at [46](http://www.dynamic-</a></p>
</div>
<div data-bbox=)

- Most of these scripts might be Internet Explorer or Netscape browser specific. So read the instructions on these Web sites carefully before you use them on yours.
- Some scripts may not have the actual code in the listing provided. They will be downloaded from the respective sites as and when required.
- If you mess with the positioning of the code, your site might look sloppy. Hence, take care and follow the instructions carefully.

drive.com. Download the games and unzip them. Before you upload them on your site, read the instructions provided by the author. Copy all the necessary files on a specific directory on your hosting space and provide a link from your main page to the games section of your Web site. Believe it or not, most visitors get highly enthusiastic when they see age-old games that they can play online!

### Create the blocks

*There are sites where you can create logos, buttons and GIFs of your choice. Customise the available buttons and GIFs to suit your preference*

#### Create Logos

If you want a logo for your site, log on to [www.flamingtext.com](http://www.flamingtext.com) and from the sitemap choose 'Start here' in the 'New Users' section. You'll reach a page that carries a list of all available designs. Select the one you want, and you're taken to a page where you can edit the design—change the text, size, colour, or font. Enter

### Digsters World!!

*It's easy to create logos*

your preferences in the appropriate boxes and click on 'Create logo'. A few seconds of rendering, and your logo's ready. Right-click on the image to save it to your disk. You can use the image on your site as your registered logo.

#### Sew that button

There are sites that help

you render buttons. Visit [www.flamingtext.com](http://www.flamingtext.com) and click on the buttons section listed at the top of the page. Choose the style and appearance of the button. The final section of the page lets you add text and change features such as colour gradients, the shape, etc of the button. Make your modifications and click on the

*Creating buttons for your site*

'Add text' button to create your button. A few seconds and your button's rendered and displayed on the Web site. Save it by right-clicking on it.

### Cool links

Free script sites  
[www.dynamicdrive.com](http://www.dynamicdrive.com)  
[www.the-cool-place.co.uk/javascript/](http://www.the-cool-place.co.uk/javascript/)  
[www.wizardscc.com](http://www.wizardscc.com)  
 Text manipulation  
[www.cooltext.com](http://www.cooltext.com)  
[www.flamingtext.com](http://www.flamingtext.com)  
 Apps  
[www.anfyteam.com](http://www.anfyteam.com)  
[www.thefreesite.com/Webmaster\\_Freebies](http://www.thefreesite.com/Webmaster_Freebies)  
[www.bcentral.com](http://www.bcentral.com)  
[www.guestbookgiant.com](http://www.guestbookgiant.com)

## PROMOTE YOUR SITE

There are many ways to promote your site to increase traffic



#### Tell your friends

One of the best ways to inform your friends about your online home is by 'word of mouth'. Include your URL in the e-mail signature file that goes with your mail. Most e-mail clients and Web-based e-mail services such as Yahoo! and Hotmail allow you to create signature files that go with your mail. So add your URL and every time you mail someone you will be informing the recipient about your site at absolutely no cost.

#### Meta tags to mobilise your site

Meta tags are HTML tags that carry descriptions about your site. Keywords that search engines look for (while indexing) are usually placed inside the Meta tag of a Web page.

To analyse whether your Meta tags are useful, visit <http://www.bcentral.com/products/metatags.asp> and enter your URL in the space provided. Click on the 'Check Metas' button. The Meta tags in your site are analysed and results are displayed.

Use the site's 'Meta tag builder' tool to build better tags that will rank you higher in search engines.

Keyword meta tag: `<META NAME="keywords" CONTENT="technology, computers, digital lifestyle">`

Description meta tag: `<META NAME="description" CONTENT="This page is about technology, computers and digital lifestyle.">`

#### Image indexing

It's not only title and Meta tags that help you get indexed on search engines. Some search engines use the image tag's 'alt' attribute to



Buyers Guide, Indian Vendors, Tutorials, Install Guide, Platforms, Maintenance Tips

ServerZone

[www.zdnetindia.com/server](http://www.zdnetindia.com/server)



index and rank pages. The attribute shows a tool-tip kind of text when you hover the mouse over the image. This descriptive text can help you get listed in search engines that use this feature for indexing and ranking. Of course, this does not work across all search engines, but you could definitely give it a try.

```
<IMG SRC = "thinkdigit.jpg"
width= "20" height= "20" alt=
"Think digit logo">
```



## Search secrets

When providing keywords, the 'alt' attribute of any image on your Web page is a good place for placing commonly misspelled versions of a keyword and associated plural phrases.

48

## Get linked

Most traffic to your site would be directed from links that people click at other Web sites. So you need to build your online network and get listed on other sites that could pro-

vide a link to your page. You can exchange links with other people by visiting [www.123link.com](http://www.123link.com) or [www.recipro-links.com](http://www.recipro-links.com). Link exchange involves something called reciprocal links. This means that you need to list a particular site in order to get yourself listed on that site. While choosing a link exchange site, choose one that pertains to your content.

## Check your stats

Check your stats and other log details regularly so that you can watch which pages are visited the most and which aren't. This will help you figure out which are the popular sections of your site and you can start providing more of the relevant content to your visitors.

## Five ways not to promote your site

■ Say no to spam: If you start mass mailing frequently, you can be sure that your site will soon be ignored.

■ Submit right: There aren't more than 30 to 40 effective search engines. So don't waste money on sites that offer to get you listed in 500 search engines. Use some auto-submitters as we mentioned earlier and then make manual submissions to directories that hook with your interest and are relevant to the con-



## Get listed

■ Focus on the site: Search engines rank their results according to relevance with the search phrase. If you get yourself listed on the 'Education' section while your page talks about entertainment, most visitors will turn away from your site. So focus on the content and get listed in the appropriate section.

■ Do not spam your index: If you think repeating the keyword in the Meta tags or the title of Web page will rank you higher in the search, you

are wrong. Most search engines are trained to ignore such spamming of keywords and they might even remove you from the result set.

■ Submit to specialised searches: Use the services of [www.submitexpress.com](http://www.submitexpress.com) or [www.submit-it.com](http://www.submit-it.com) to submit your site to some of the popular search engines. Not all search engines work in the same manner. Look for special instructions on the search engine's Web site and customise accordingly.

tent of your Web page.

■ Perfection gentlemen: Do not host an incomplete site. If there are dead links or 'under construction' pages, visitors may not return. Complete the site in all respects and then upload it.

■ Play it safe: There are a lot of sneaky tricks available on the Internet that claim to increase your Web traffic. Do not fall for any of those. Use normal Meta tags and description tags as suggested earlier in this section.

■ Don't stop if you are finished: Site promotion is an on-going process and is never to be stopped. Once URL submissions are made to search engines, make sure that they are working. Check again after a month or as frequently as possible and

resubmit URLs if required. Check on services such as link exchanges and banner ads. Keep updating your pages regularly with newer content and that will keep your site alive and the visitors coming in. ■

## Cool links

Submit your URLs  
[www.submit-it.com](http://www.submit-it.com)  
[www.submitexpress.com](http://www.submitexpress.com)  
[www.siteowner.com/sifree.cfm](http://www.siteowner.com/sifree.cfm)  
[www.selfpromotion.com](http://www.selfpromotion.com)

Link exchange  
[www.geocities.com/CollegePark/Quad/6680/linkpage.htm](http://www.geocities.com/CollegePark/Quad/6680/linkpage.htm)  
[www.123link.com](http://www.123link.com)  
[www.reciprolinks.com](http://www.reciprolinks.com)  
[www.countrycalendar.com/our\\_links/](http://www.countrycalendar.com/our_links/)

Time required to get listed on popular search engines

Search engine	Time
MSN	Up to two months
Google	Up to four weeks
AltaVista	Up to one week
Excite	Up to six weeks
AOL	Up to two months
HotBot	Up to two months
iWon	Up to two months



ISP Ratings, Interactive ISP finder, ISP Speed Test  
 Interactive ISP Comparison

ISP Finder

[www.zdnetindia.com/isp](http://www.zdnetindia.com/isp)



# G A M FOR SOME MODIFICATION?

Sick of playing the same titles on your hard drive over and again? How about producing your own offering just to show you can do better?

**I**n the early days, gamers would almost stumble onto programming while playing their favourite game. Early computer games were written in BASIC, and the player could quite easily break into the source code and read what the programmer had written. These gamers very often grew up to become programmers!

But that was then. Game development is like rocket science now. The technology curve of modern 3D games is as advanced as F1 racing (gouraud shading, doppler effects, anti-aliasing anyone?). It's almost impossible to build a game from scratch. With 3D engines and gazillion lines of coding required for a game, game development is an impossible proposition for someone without a mathematics or physics degree.

The time, money and resources required to make a title today are daunting. You need a team of artists, programmers and designers. Hence, before you attempt to make a whole new game, it makes more sense to take baby steps and try to modify an existing game.

## Mods 101

Modifications or mods have their roots in hacking and reverse engineering game code, but now they've evolved to a point where mod support in games is almost a requirement. Any game released these days without a large editing component is frowned upon by reviewers. Games like *Quake* and *Half-Life* were almost designed to serve as an SDK (Software Development Kit) for the community to build on.

A mod is essentially a new game you can play, using modified rules, weapons or levels. Since the early days of *Quake I*, id Software has generously allowed the community to create their own mods. It's these mods that have given *Quake* its longevity and fostered the great *Quake* community we have today. *Capture the Flag* and *Team Fortress* turned out to be the driving points for the game

ILLUSTRATION: Ram





## On the Gamestation CD

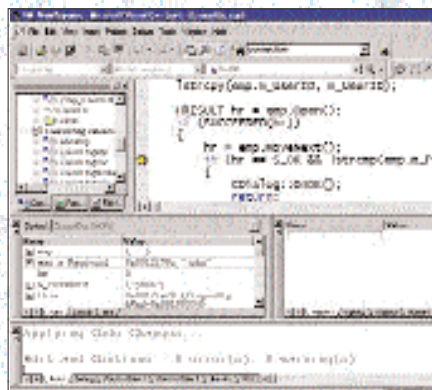
Game editing toolkits like Dark Basic, 3D Game Maker, level editors like Worldcraft, Quake3Radiant, game codes for *Quake III* and *Quake III Team Arena*, and 3D modelling and animation tools such as MilkShape 3D, gmax v1.1, and 3D Game Studio among others.

itself. Some mods are so different from the original version of the game that they become 'Total Conversions' (TC) and bear no resemblance to the original product. *Half-Life's Counter-Strike*, *Quake III's Rocket Arena*, *Quake II's Jailbreak* and *Quake III Rally* are some of best examples of such work.

Almost every game these days allows you to create new extensions for it, there's something out there for everyone. But the best pad to start off from would be the 'the big three'—the *Quake* series, *Unreal Tournament*, and *Half-Life*. All of them have seen a huge popularity in the modding, mapping and modelling scene. Of late, *Serious Sam* has also emerged as a popular mod development platform.

## Compile as you are

Making a mod requires some level of programming knowledge; in fact, mods are good teaching tools to learn programming from. The language of choice for programmers is usually C or C++, so you will be able to find a wealth of resources and help. You should pick up some advanced books for reference. There are also a number of tutorials available on the Web for learning C and C++ that can help in supplementing what you learn from books.



Programming mods in Visual C++

Microsoft Visual C++ has a powerful development environment that will make things easier for you, and there's no other compiler better suited to developing Windows applications.

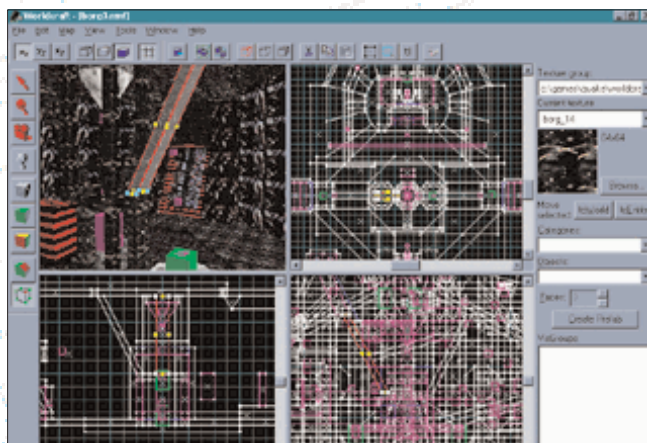
There are a large number of compilers available, including many free ones. Bloodshed is an awesome IDE (Integrated Development Environment) for beginners. It has everything you need to start out and is completely free. It can compile as quickly as Visual C++ or Borland, and is suitable for beginners.

Once you have the tools, you need to download the source code to work with. Each game has a different way by which you can tinker with it. There are actually two types of code that an editing community may see: game code (which allows you to make mods) and source code (engine code, networking code, etc—basically, if you had this you could rebuild a game from scratch).

You would either need to tamper with the game code (*Quake III*) or write high level scripts (*Unreal Tournament*) to create your own custom version of the game. Some games don't require any downloads; you simply work with the files packaged

within the game (*Unreal Tournament*). For almost every game that can be 'modded', there are extensive tutorials available on the Net that show you how to do so. Code 3 Arena ([www.planetquake.com/code3arena](http://www.planetquake.com/code3arena)) is an excellent resource for *Quake III* editing, and it teaches you everything you wanted to know about programming *Quake III* mods.

When you begin writing a mod you should start small. Don't plan to write a TC from the very start. If you set goals that are too hard to reach, you'll get frustrated in the process of working towards them. It is much better to set a series of small goals and work towards each one in turn. Start with a simple idea that could be expanded into a larger game. A simple gun or gameplay modification would be a great way to begin.



Worldcraft Editor: Design your own levels for Half-Life

## Quake II goes Open Source

id Software released the source code for *Quake II* at the end of 2001 under the 'GNU Public License'. The *Quake I* code was released a year prior to that under the same license. This license, amongst other things, allows you to use the source code and the binaries of *Quake* and *Quake II* for commercial and non-commercial purposes.

Simply put, it means that if you have made a game without using any of id Software's other intellectual

properties (such as textures, models, sounds and so on), you are now legally allowed to sell your work. You can do anything you want with the code, including sell your new version. The catch is that if you distribute new binary versions, you are required to make the entire source code available for free to everyone.

All of the *Quake II* data files remain copyrighted and licensed under the original terms. So you cannot redistribute data from the original game, but if you make a true total conversion, you can create a standalone game based on this code.





## Make your own world

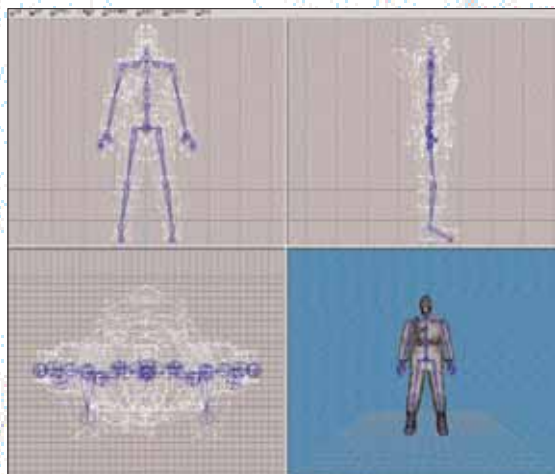
Did you always want to make games but not spend a lot of time programming? Maybe you're more the elite Photoshop and graphics expert than the programming geek. In that case you might be interested in learning how to make maps and 3D models for games.

Mapping is probably the most popular way to modify your game. Games today ship with map editors and anyone can produce a playable map in a short time. While the other aspects of making a mod require experience in programming or 3D modelling, map making is fairly easy to learn. Though anyone can make a map, making a level that is playable and enjoyable is a totally different ball game. Level design is an art and a science that doesn't come easy. It requires an insight into how a person perceives a 3D environment and is a science in the way you manage the number of polygons (objects) on the screen. The best way to learn would be to observe how other game maps are made.

The tools for mapping differ with each game. Map editors available for *Quake II* include Worldcraft, gmax and Q3Radiant. For editing *Unreal Tournament* you need UnrealED, which conveniently ships with the game. There are many different editors, and it's entirely up to you to pick the one that works best for you.

## Modelling

Essentially there are five main steps in the creation of a model to be used in a mod: establishing the concept of how you want the finished model to look, the creation of the model itself, adding bones to the model, animating it, and finally creating a texture map (skin) for the model and



Milkshape 3D: The poor man's modelling kit

## Game Creation Toolkits

There are freeware game engines, textures and sound samples available on the Net, all ripe for the picking. While they might not be as graphically spectacular as the current crop of games, they will provide valuable insight into the process of making your own game. Freeware engines such as Varnavski's 3D Engine, HAWK and Yager are good starting points.

If you've ever wanted to make your own games, you should play around with DarkBasic for a while. It is just BASIC, so the programming won't make you tear your hair out.

It combines a high-end 3D engine, a 2D engine, a map and model editor, a compiler and huge libraries of 3D objects, artwork and pre-made games. With such an environment, you can create first person games, third person games, role-playing games, side scrollers, flight simulators, spaceship simulators—in fact, anything you can imagine. DarkBasic's big plus is that you don't have to pay a license fee to

exporting it to the 3D engine of your choice. The game engine you use will affect the way your models, animations and skins need to be set up and saved.

The standard in 3D modelling is 3D StudioMax. The drawback is that it happens to cost a bomb. For many mod makers the cost of purchasing 3D Studio Max rules out the possibility of owning a copy. With Milkshape 3D, however, you have a readily available model editor that anyone can use. Milkshape 3D is a shareware modelling and animation package available from chUmbaLum sOft.

A lighter version of 3D StudioMax, called gmax is now available. This package has been specially formulated for game modders—gmax itself is free for use; the developers need to pay for supporting it in their games.

For tips and pointers, run through a few Milkshape 3D help files to get yourself started. The next logical place to go is [www.planetquake.com/polycount](http://www.planetquake.com/polycount), one of the best resources for game models on the Net. You can learn a lot by keeping a watch on the forums, which are frequented by skilled 3D modellers.



Use 3D Game Maker to create immersive games of your dreams

sell your games. You can make as much money as you like without DarkBasic trying to take a chunk of your cash, unlike some other packages of this type.

If you're an aspiring game maker with no idea where to start or a user who cannot imagine the complexities of game making, then this is the product for you. There are many other options that do the same, BlitzBASIC, Game Maker, and 3D Gamestudio being the worthwhile ones.

## Start a modding team

The obvious drawback of doing it single-handedly is the amount of work and skills needed to make a good mod. You'd have to create all the maps, do your own programming, handle the art and modelling—basically you'd have to supply everything a mod needs, on your own. That's a lot for one person to work on. The team approach works best when creating a mod. Each person on the team has a specialty—texture art, programming, models, sound, etc. Responsibilities are doled out based on what each person can do.

Your team doesn't have to come together at a physical location. Most of the popular mods we know today were collaborative projects made entirely on the Net, using IRC and IMs. It might be a little hard to find enthusiastic and talented team members, but hanging around game forums should get you acquainted with likeminded people. It's pretty easy to get the word out that you're forming a mod team; game forums usually don't have a problem with listing 'Help Wanted' notices for groups. Once you've formed your band of merry men all you need is an opponent to frag. ■

SRIRAM SHARMA

# SERIOUS SAM

## T H E S E C O N D E N C O U N T E R

Sam is back, and he's more Serious than ever in the Second Encounter!

**S**erious Sam: The Second Encounter starts where the original left off, with our hero in arms, Sam Stone, crash landing the alien's mother-ship in South America. *The Second Encounter* resolves one of the biggest flaws of the original game—the constant Egyptian environment. You'll face many new scenarios, from lush jungles to fearsome medieval castles. The winning formula of dizzying and frenetic 'frag-fests' set in three new environments, South America, Babylon, and the Middle Ages, will keep your trigger finger itching for more.

### Must-know console commands

🔴 **Open Doors:** If you want to open a door without going through the effort of finding the key, stand in front of the door and press [F1] to bring down the console. Now type *please open* and hit [Enter].

🔴 **Bullet Time:** To slow down the game *Max Payne* style or even speed it up, go to the console and type */gam\_frealltimefactor=X*, where 'X' is the speed factor. Choose a



*Skin 'em raw: The chainsaw is an excellent melee weapon to dispose of Gnaars and Kleers*

number larger or smaller than 1 to increase or decrease the speed. A setting of 2 will double the game speed, while setting it to 0.5 will make everything move at half the speed.

🔴 **Display the frame rate:** Bring down the console by pressing the [~] key, type */hud\_iStats =1*, and then press [Enter] to display the FPS. Anything above 30 FPS is playable; change the resolution and colour depth if you are getting less than that.

🔴 **Multiplayer Models:** Display only the Sam multiplayer model to reduce the load on

your system. Bring the console down with the [~] key and type */plr\_bOnlySam=1*, then press [Enter].

### Survival is the name of the game

A few basic rules that should help you hold your own in *Serious Sam*:

🔴 Circle-Strafe, Circle Strafe—and Circle Strafe some more!

🔴 If it moves, shoot it! There are no good guys.

🔴 Pay attention—keep your ears tuned for sound cues on enemies

appearing, items spawning and other clues that let you know what's going on.

🔴 Explore—search every room before moving on. You'll need all the hidden items, weapons and armour that you can get your hands on.

🔴 Quick Save often, especially when you've grabbed health or armour.

### Deathmatch Tricks

🔴 **Fun with ramps:** You can use the quirks in the *Serious Sam* physics engine to your advantage. When jumping off a ramp, your character accelerates to a speed that is normally impossible. You can use this quirk to take shortcuts and outsmart enemies. In the deathmatch maps, there are several ramps in the central pit where you can use this tactic.

🔴 **Sniper haven:** Equip yourself with a rocket launcher, head toward one of the outer walls and rocket jump out of the arena. You'll end up on top of the level, standing on a black surface. From this point you can snipe uninhibited at the players below. Don't hang around there for too long though; the longer you stay up there, the more health you lose. 📌

SRIRAM SHARMA

### Serious Sam II cheats

Press the [~] key during gameplay to bring up the console window. Type in the following cheats and press [Enter] to turn on the desired cheat.

God mode: *please god*

Restore energy: *please refresh*

Flight mode: *please fly*

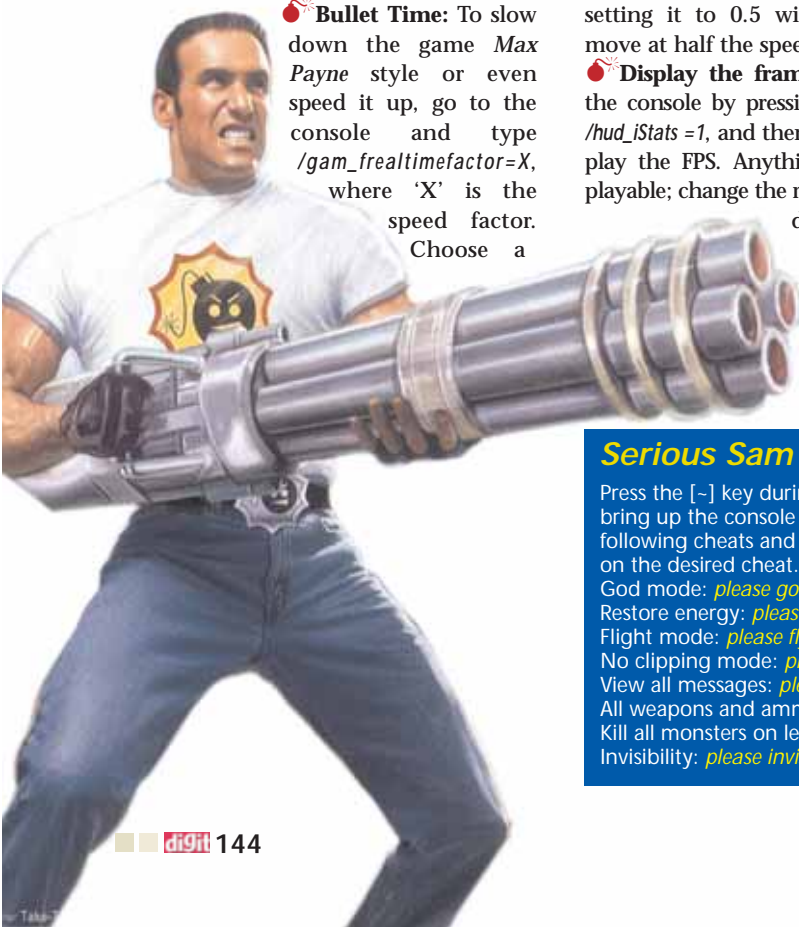
No clipping mode: *please ghost*

View all messages: *please tellall*

All weapons and ammo: *please giveall*

Kill all monsters on level: *please killall*

Invisibility: *please invisible*





# Off the Shelf

Get your adrenaline rush with these power-packed game reviews

## GLOBAL OPERATIONS

### Send in the Experts

The rage in online gaming for the last couple of years has undeniably been *Counter-Strike* (CS), a team-based title that allows groups of terrorists and counter-terrorists to go head to head. An obvious offshoot of the CS craze, *Global Operations*



**TUNNEL VISION:** The Binoculars are one of the many toys you get to play with

from Barking Dog takes the original formula, adds a bit of innovation, and comes up with something that's tasteful.

You play a member of an elite military force such as the SAS or the Australian Special Operation forces, pitted against criminal organisations in Chechnya, Sri Lanka and the South China seas. Missions are team-specific, such as 'Rescue the hostage'

and 'Disarm the bomb'. Now before you say "*Counter-Strike* clone", *Global Operations* plays more like *Team Fortress* and less like CS, with a focus on team play, which is a non-existent aspect of CS. While CS is based more on individual combat, *Global Operations* focuses more on working with your team mates to complete your missions.

You can play one of six different roles: Recon, Commando, Medic, Heavy Gunner, Demo and Sniper. You have an arsenal of real-life weapons such as machine guns, shotguns and snipers, as well as accessories such as silencers, laser sights, and night vision goggles.

Missions begin with your characters being transported to the battleground. During this time, you are allotted some money much like in *Counter-Strike*, for purchasing your character's weaponry and equipment. Money is earned by killing enemies and completing mission objectives. Plus you have whatever is left over from purchases in the previous round.

The graphics aren't breathtaking in any way, especially when compared to games like *Serious Sam* and *Return to Castle Wolfenstein*. The animations and character movement are well done, as are the

weapons effects. When a grenade is hurled at you, the screen will go all blurry and you'll experience a hearing defect, followed by a long buzzing noise. These contribute a lot to the gameplay value.

The game is heavy on the Multiplayer aspect, and even the single player mission is dependent on bots, which are poorly programmed. While playing the game, the teammates routinely ran directly into the line of fire without regard for stealth. The AI proved to be weak at many spots and didn't give a team-based experience.

The game successfully fuses a wide variety of great weapons with character classes in a slick fashion, which is its winning argument. However, *Global Operations* does not measure up to the playability of *Counter-Strike*. If you're comfortable playing *Counter-Strike*, there is no compelling reason to pick up *Global Operations*. Poor network performance and irksome graphics require some patching, which should be available by the time this review reaches you.

**Genre:** Team Based FPS

**Developer:** Barking Dog Studios

**Distributor:** Gayatri Impex Pvt Ltd

**Phone:** 022-3881443

**Web site:** [www.barkingdog.com](http://www.barkingdog.com)

**Price:** Rs 1,299

**Rating:** ★★★★★

## 4X4 EVOLUTION 2

### Race on

If hardcore fun and racing reality is what you are looking for, then you can expect some rough riding and a face full of muck while playing this game! It has some amazingly realistic graphics with gravel and dust flying up in the air, and large open maps with some neat scenery. The tracks are very well thought out and lend

themselves well to the game's inherent physics. Running it on a GeForce3 powered machine allows the game to really shine. The only thing lacking in the graphics department is the damage effect to the trucks. The trucks remain as shiny as ever despite going through dirt, blasting through rocks, and falling off cliffs!

The game offers four different weather options, which include Clear, Foggy, Dense fog and Rain, and two different 'time of the day' options (Mid-day and Dusk). All these are brilliantly rendered and greatly improve the replay value of the game. It boasts of over 32 tracks and over 120 top-of-the-line trucks from Dodge,



Jeep, Nissan, Infiniti, Toyota, Lexus, Mitsubishi, Chevrolet and GMC, with every

bit of external detail recreated. The game runs you through a series of races and challenges, with a cash prize at the end of each, which you will need to upscale your truck and buy new components.

Its gameplay and physics are more of the 'hit and run' arcade style racing games but it makes for some very enjoyable racing action. There is little that you can do wrong with the controls and you would have to really push the vehicle to make it go belly up.

The game pits you against seven computer

AI opponents, none of whom is a pushover! You can expect a lot of fun trying to beat them and that will happen only when you've gained enough knowledge about the track. You can take as many shortcuts as you want but you can't go too far off track because you have to go through all the checkpoints on a track.

The game offers a rather interesting option called 'Free Roam', where the driver can tour maps alone. It has multiplayer support and you can compete against your pals on a LAN or on the Internet.

**Genre:** Sports/Simulation

**Developer:** Terminal Reality

**Distributor:** e-Xpress Interactive

**Phone:** 022-8870017

**Web site:** www.4x4evolution.com

**Price:** Rs 699

**Rating:** ★★★★★



**OFFROAD ACTION:** An arcade style racing game that will have you ploughing dirt at your opponents

## SERIOUS SAM: THE SECOND ENCOUNTER

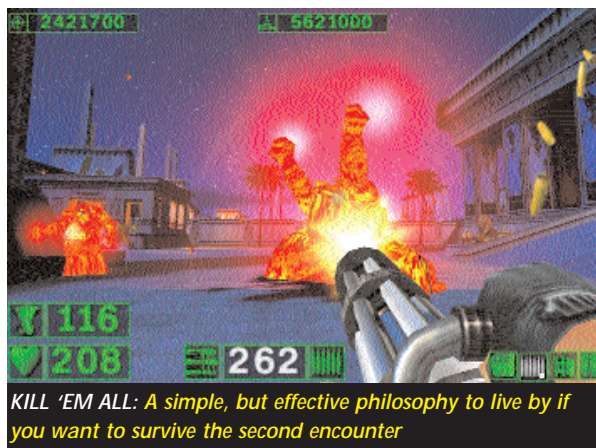
### Seriously Fun

About a year ago, Croteam, an unknown garage development team from Croatia released the surprise hit of 2001. Hailing back to the formula of *DOOM*, this game was welcomed by everyone for its wafer-thin plot, tongue-in-cheek humour, and run-and-gun gameplay. The colourful and bright settings and graphical eye candy made it a real blast to play. Croteam now serves up another dose of adrenaline with *Serious Sam: The Second Encounter*.

This time, Sam Stone has some new enemies and new guns in a whole new setting (you explore Mayan, Babylonian, and Medieval lands). We could tell you more about the story, but that's hardly the point. Rest assured, you will have a lot of Mental's Minions to kill. *The Second Encounter* (*TSE*) builds on the ideas laid out in the original by adding more things to shoot at, more levels, more wacky secrets, and more of that unique humour that has become a trademark of the original.

If you haven't played *Serious Sam 1*, you're in for a visual treat. The Serious Engine is just amazing. Glorious lighting, gigantic levels, bright colours, and hundreds of enemies on the screen at once—with no drop in frame rates! No one else has attempted to create a game with such wide, open areas and locations since the first *Serious Sam*.

There are four new weapons for *TSE*:



**KILL 'EM ALL:** A simple, but effective philosophy to live by if you want to survive the second encounter

the Chainsaw, Sniper Rifle, Flame Thrower, and Serious Bomb, in addition to all the fun weapons from the first game. The gameplay usually revolves around getting a gun and killing things. Get a bigger gun, and kill some more. You'll be hunting for switches and/or objects to open doors but unlike *Quake*, you'll be warding off hundreds of monsters at the same time. There's a bit of puzzle solving involved too and the level design will test your reflexes as well as your brain.

There's nothing like the scream of a Kamikaze coming from far off to send waves of panic through you. Or having a 50-foot tall Mechanoid shoot rockets at you. The sound effects have been done exceedingly well, considering the budget Croteam would have been working with.

Extra points for the background music, which switches to Metal/Industrial mode when the enemies appear up and close.

There's a whole bunch of multiplayer options that come with this game—LAN, Internet (Gamespy), or Co-operative Deathmatch. You also get some really cool mods for multiplayer, such as *Seriously Warped Deathmatch*, *Scorematch*, *Co-operative*, *Fragmatch*, *Thief*,

*Rugby*, *Teamplay* and *Capture the Flag*, all of which are bundled with the game.

While all the other shooters out there are trying hard to be realistic, *Serious Sam* tries to make the game as much fun as possible. And fun is what you get. For Rs 699, *TSE* gives you single player, co-operative, multiplayer, and other gameplay modes, which will keep you busy for a long time. If you have a decent PC with a 3D graphics card yearning to be pushed, go get this game.

**Genre:** First Person Shooter

**Developer:** Croteam

**Distributor:** e-Xpress Interactive

**Phone:** 022-8870017

**Web site:** www.croteam.com

**Price:** Rs 699

**Rating:** ★★★★★

# A Model Issue

Or a look at what goes on inside to present a sparkling front

The excitement never ends at Digit. There was another round of it in May, while we were preparing for the June anniversary issue. Being a special issue, the stories obviously had to be off the beaten path—topics that weren't covered before, comparison test of products that hadn't been tested earlier and so on. Then of course, since we wanted to create a unique package with five content-packed CDs, there was double the amount of research and planning to ensure that everything was smooth sailing. Even the cover had to be special, befitting our first birthday.

All kinds of ideas were tossed around to make the cover stand out. After several brainstorming sessions, heated discussions and cups of tea, we finally settled on a cover that would have a gold touch to it, in keeping with the celebratory mood.

But first things first. We had to start off by choosing a female model appropriate for the cover. And if you are thinking why female, well, here's the answer. The model is selected on the basis of the cover story. Depending on the product covered in the leading story, we make the decision as to whether we must go for a male or a female model—products that are sleek, funky and 'smooth' are generally accompanied by female models (cellular phones, MP3 players, digicams and so on), while traditional and powerful computing products (hard disks, processors, monitors, etc), are graced by men. Anyway, getting back to the earlier and moot point. As we were going with the gold touch, obviously the best skin tone would be a dusky brown and so the hunt for the model with the right dusky looks was launched. The folks in charge of selecting the model did a thorough job, examining the short listed candidates taking into consideration every possible photographic factor—the appropriate skin tone, the right kind of sophisticated looks for a cutting-edge technology product, the lightning that would be used, and so on.

While the designers and photographers pored over the portfolios to pick the right model, there were some parallel (and unofficial) judging panels that were doling out their decisions. Almost all Digsters managed to sneak out some time to go over the portfolio that our

Every element that went into the shoot was carefully and painstakingly examined and checked and then checked once again—the lighting, make-up, clothes and so on. When the photographs were processed, the next task was to do the necessary high jinks in Photoshop to adjust the look and feel of the



ILLUSTRATION: Mahesh Benkar

photographers had brought in. Several rounds and several criteria and an even larger number of vastly differing opinions were forthcoming. But choose a model we did. There were some other interesting incidents. One that distinctly stood out was a top model's sibling insisting that we carry a story written by him if we wanted his sister to pose for the cover. Well, well...

The actual model shoot was to be held at a venue that was about 45 minutes away from the office premises. This involved lugging some equipment (an easy task) and a few excited souls (the more difficult job) to the destination taking care that neither of the two encountered any damage. Ashwin, one of our ace designers, was more than thrilled to accompany Mexy and Jiten, our in-house photographers to the shoot.

scanned image, so that it matched the magazine's spirit and the contents that would go on the cover. An easy task for Ashwin, except that he had to contend with the 'expert' opinions of everyone who happened to pass by his desk. Everybody was curious and excited about the anniversary issue, even those not directly working on Digit, and there were more ideas and suggestions being offered. We finally had to shift Ashwin to a secluded spot where he could work in peace and volunteers from the team took it upon themselves to make sure that he wouldn't be disturbed.

The final output obviously saw hordes of Digsters gathering around our man's desktop, admiring...er...the model, um...Ashwin's handiwork. Oh well, we can't really make up our minds about that. ■



Technology wise

“For a list of all the ways technology has failed to improve the quality of life, please press three.”  
— Alice Kahn

“Any sufficiently advanced technology is indistinguishable from magic.”  
— Arthur C. Clarke

“Humanity is acquiring all the right technology for all the wrong reasons.”  
— R. Buckminster Fuller

“For a successful technology, reality must take precedence over public relations, for Nature cannot be fooled.”  
— Richard Feynman

“Technology is a way of organising the universe so that man doesn't have to experience it.”  
— Max Frisch

Selected from [www.quotationspage.com](http://www.quotationspage.com)

Blue Death



Some things stay the same—even on a wide screen!  
Contributed by Savio Fernandes,  
Via e-mail

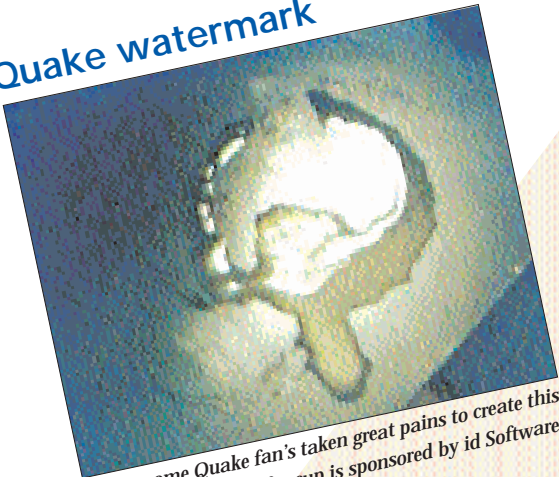
Thinking ahead



Can't blame Microsoft for all their success—they always plan ahead!

Where a calculator on the ENIAC is equipped with 18,000 vacuum tubes and weighs 30 tonnes, computers of the future may have only 1,000 vacuum tubes and perhaps weigh 1½ tonnes  
—Popular Mechanics, March 1949

Quake watermark



Either some Quake fan's taken great pains to create this memento, or his coffee cup is sponsored by id Software!

Sentenced to slog!



Looks familiar, doesn't it?

Convergent Technology, anyone?

<p>The proverbial all-in-one device, now with communications capability!</p> 	<p>Specially designed for the new-age woman!</p> 	<p>Lost your keys? No problem. Just call its number.</p> 
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Contributed by Tanya Misquitta, via e-mail

Your chance to bite back!

Highlight the lighter side of computing. Mail your contributions to:

Backbyte  
Digit, Plot D-222/2, TTC Industrial Area, MIDC,  
Shirvane, Nerul, Navi Mumbai 400 706  
or e-mail us at [backbyte@jasubhai.com](mailto:backbyte@jasubhai.com)